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ABSTRACT

This is the teacher's manual to accompany part 2 of the workbook for kindergarten pupils in the Comprehensive Instructional Management System, a teacher-designed unified mathematics curriculum for kindergarten through grade 7. It is composed of a curriculum, a testing component, and a computer-managed reporting system. The curriculum is organized into modules of similar skills or understandings from 14 topics. Each module has: a suggested period of duration for student mastery; a listing of new skills to be mastered by the student in the form of performance objectives; a section devoted to vocabulary, terms, and symbols; getting started activities on prerequisite skills in preparation for undertaking new objectives; strategies for teaching the new skills; and student activities for providing reinforcement for the newly learned objective. After the sequence of modules and content by topic are displayed, teaching suggestions for 51 modules on 81 performance objectives are given. The content is from the topics of: numbers and numeration; addition; subtraction; fractions; geometry; measurement; graphs, probability, statistics; and problem solving. Pages from the student's workbook are interspersed with the suggested activities. (MNS)

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CIMS

COMPREHENSIVE INSTRUCTIONAL MANAGEMENT SYSTEM

A Cyclical Mathematics Curriculum

PART 2—TEACHER

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FOREWORD

The Comprehensive Instructional Management System (CIMS) is a unified mathematics curriculum for grades K-7. The curriculum is cyclical in design, and reflects the most recent New York City and New York State guidelines.

Utilizing the experience of our system's teachers, we have developed a teacher-designed curriculum that includes a rich selection of classroom-tested successful mathematics activities. The major goal of the CIMS mathematics project is to provide the classroom teacher with a well-structured, objective-based curriculum. All objectives are supported by a variety of strategies. Student mastery of these objectives is readily diagnosed through the system's testing component.

The curriculum format is structured to allow the teacher to determine the ability level of the students in the topic under study, and to permit the students to move forward at their individual rates. Each module of instruction provides the teacher with a set of related performance objectives. These objectives are supported by activities which probe and develop the students' readiness to undertake new skills and concepts. Further reinforcement is given to mastery of the objectives through accompanying student workbooks.

It is hoped that this curriculum will not only assist teachers in developing vital mathematics instruction, but will serve to expand and enrich students' mathematics skills.

Charlotte Frank

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ACKNOWLEDGMENTS - 1984

The Comprehensive Instructional Management System (CIMS) was developed as a project of the Division of Curriculum and Instruction, Charlotte Frank, Executive Director. Dr. Peter Negroni, Community School Superintendent CSD 12; Dr. Harvey Garner, Community School Superintendent CSD 18; Carlos Edwards, Community School Superintendent CSD 23, and Joseph Pacheco, Community School Superintendent CSD 32 supervised the overall development of the CIMS program within their respective districts.

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INTRODUCTION

The Comprehensive Instructional Management System (CIMS) is a teacher-designed educational delivery system composed of a curriculum, a testing component and a computer managed reporting system.

Designed to support mathematics instruction in the classroom, CIMS provides a comprehensive cyclical mathematics curriculum for grades K through 7. Each manual describes the curriculum for a single level or grade. Teacher curriculum developers from elementary, intermediate and senior high schools utilized the most current New York City and New York State guidelines in formulating the curriculum's modules and sequence.

Curriculum Topics

The CIMS mathematics curriculum has been organized into the following 14 topics:

.01 Numbers and Numeration
.02 Addition of Whole Numbers
.03 Subtraction of Whole Numbers
.04 Multiplication of Whole Numbers
.05 Division of Whole numbers
.06 Fractions
.07 Decimals
.08 Integers
.09 Geometry
.10 Measurement
.11 Algebraic Concepts
.12 Graphs, Probability, Statistics
.13 Problem Solving
.14 Review

Modules of Instruction

The CIMS curriculum is organized into modules or groupings of similar skills or understandings. Each module has a suggested period of duration for student mastery, a listing of new skills to be mastered by the student in the form of performance objectives, a section devoted to vocabulary, terms and symbols, getting started activities which serve as prerequisite skills in preparation for undertaking new objectives, strategies for teaching the new skills and student activities for providing reinforcement for the newly learned objective. Note that

the lesson duration is included only as a guideline to the teacher for planning purposes. The actual time required for each module will vary from class to class and from child to child depending on the needs of the students and the teacher's judgment.

Priorities of Performance Objectives

There is an order of priority to be recognized in teaching the content presented in the CIMS NEW YORK CITY MATHEMATICS CURRICULUM. Performance objectives with the greatest priority are so basic that unless the student acquires a satisfactory degree of competency in them, the student cannot progress. Such topics are marked A and mastery by all pupils is essential.

Performance objectives marked B are required to be presented to all students. Mastery is not expected at this time. These objectives will be developed further and reinforced later.

Performance objectives marked C are of special interest. These should be taught to increase positive attitudes towards mathematics.

Summary: A - Mastery of this objective is essential for progress. Opportunities for reinforcement should be provided throughout the school year.

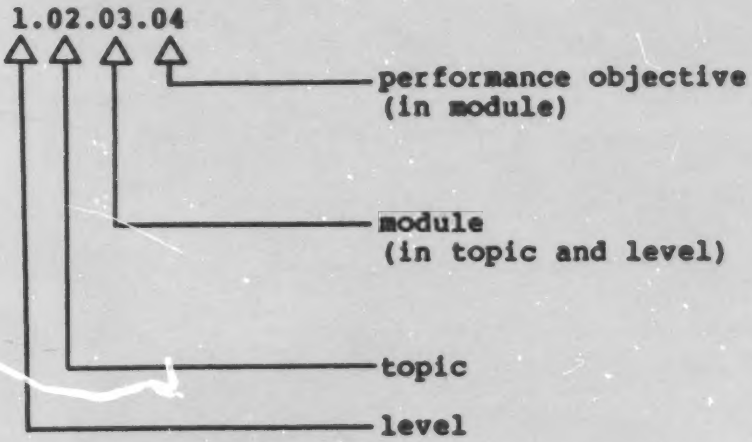
B - These objectives are to be taught to all pupils. Mastery is not essential at this time because the topics will be further developed and reinforced.

C - Objectives of special interest.

Topic Tab Key

01. Numbers and Numeration
02. Addition of Whole Numbers
03. Subtraction of Whole Numbers
04. Multiplication of Whole Numbers
05. Division of Whole Numbers
06. Fractions
07. Decimals
08. Integers
09. Geometry
10. Measurement
11. Algebraic Concepts
12. Graphs, Probability, Statistics
13. Problem Solving
14. Review

Module Coding Key



INSTRUCTIONAL SEQUENCE DESCRIPTION

An instructional sequence is given in list form on the following pages for this level. Each module in the list is described by its unit number, module number, title, and page location.

The sequence has been arranged to reflect what is considered the most effective presentation of the mathematics curriculum.

INSTRUCTIONAL SEQUENCE - LEVEL K

UNIT NUMBER	MODULE NUMBER	MODULE TITLE	PAGE NUMBER
1	0.01.01	Identification of numbers around us.....	1
2	0.01.02	Spatial relationships.....	2
3	0.13.01	Problem solving: language.....	3
4	0.13.02	Problem solving: one-to-one correspondence...	4
5	0.01.03	Classification by attributes.....	5
6	0.01.04	Groups.....	7
7	0.01.05	Comparison of sets.....	8
8	0.01.06	More vocabulary.....	9
9	0.09.01	Identification - parts of three-dimensional shapes.....	11
10	0.01.07	Numerals one (1) through four (4).....	12
11	0.10.01	Non-standard measurement.....	13
12	0.10.02	Weight.....	14
13	0.10.03	Capacity of containers.....	15
14	0.10.04	Time of day.....	16
15	0.10.05	Calendar.....	17
16	0.01.08	More identification of numbers around us.....	18
17	0.09.02	Shapes around us.....	19
18	0.01.09	Spatial relationships - extended vocabulary...	20
19	0.10.06	General temperature measurement terms.....	22
20	0.10.07	Size concepts.....	23
21	0.10.08	Money: pennies.....	24
22	0.02.01	Addition.....	25
23	0.02.02	Add one.....	26
24	0.01.10	Conservation of the number in a set.....	27
25	0.12.01	Number relationships.....	28

INSTRUCTIONAL SEQUENCE - LEVEL K

UNIT NUMBER	MODULE NUMBER	MODULE TITLE	PAGE NUMBER
26	0.01.11	Numerals five (5) through nine (9)	30
27	0.01.12	Numeral zero (0)	31
28	0.10.09	Instruments of measurement	32
29	0.01.13	Numeral ten (10)	33
30	0.02.03	Plus (+) and equal (=) signs	34
31	0.02.04	Add two	35
32	0.02.05	Add three	36
33	0.10.10	Time relationships	37
34	0.03.01	Subtraction	38
35	0.10.11	Comparative size terms	39
36	0.10.12	Coins: nickel and dime	40
37	0.12.02	Graph reading	41
38	0.01.14	Sequence	42
39	0.01.15	Ordinal numbers first through fourth	43
40	0.02.06	Addition extension	44
41	0.12.03	Chance events	45
42	0.06.01	A whole unit	46
43	0.06.02	Share objects	47
44	0.06.03	Compare a half unit to a whole unit	48
45	0.06.04	The fraction one-half ($\frac{1}{2}$)	49
46	0.01.16	Construct and count using a number line	50
47	0.01.17	Ordinal numbers first through tenth	51
48	0.01.18	Numerals eleven (11) through fifteen (15)	52
49	0.10.13	Money: quarters through dollar bill	53
50	0.02.07	Add four	54
51	0.02.08	Add five through nine	55

CONTENT BY TOPIC

LEVEL K

Topic 01: Numbers and Numeration

0.01.01	Identification of numbers around us.....	1
0.01.02	Spatial relationships.....	2
0.01.03	Classification by attributes.....	5
0.01.04	Groups.....	7
0.01.05	Comparison of sets.....	8
0.01.06	Vocabulary.....	9
0.01.07	Numerals one (1) through four (4).....	12
0.01.08	More identification of numbers around us...	18
0.01.09	Spatial relationships - extended vocabulary	20
0.01.10	Conservation of the number in a set.....	27
0.01.11	Numerals five (5) through nine (9).....	30
0.01.12	Numeral zero (0).....	31
0.01.13	Numeral ten (10).....	33
0.01.14	Sequence.....	42
0.01.15	Ordinal numbers first through fourth.....	43
0.01.16	Construct and count using a number line....	50
0.01.17	Ordinal numbers first through tenth.....	51
0.01.18	Numerals eleven (11) through fifteen (15)..	52

Topic 02: Addition of Whole Numbers

0.02.01	Addition.....	25
0.02.02	Add one.....	26
0.02.03	Plus (+) and Equal (=) Symbols.....	34
0.02.04	Add two.....	35
0.02.05	Add three	36
0.02.06	Addition extension.....	44
0.02.07	Add four.....	54
0.02.08	Add five through nine.....	55

Topic 03: Subtraction of Whole Numbers

0.03.01	Subtraction.....	38

Topic 06: Fractions

0.06.01	A whole unit.....	46
0.06.02	Share objects.....	47
0.06.03	Compare a half unit to a whole unit.....	48

CONTENT BY TOPIC

LEVEL K

0.06.04 The fraction one-half ($\frac{1}{2}$)..... 49

Topic 09: Geometry

0.09.01 Identification - parts of three-dimensional shapes..... 11

0.09.02 Shapes around us..... 19

Topic 10: Measurement

0.10.01 Non-standard measurement..... 13

0.10.02 Weight..... 14

0.10.03 Capacity of containers..... 15

0.10.04 Time of day..... 16

0.10.05 Calendar..... 17

0.10.06 General temperature measurement terms..... 22

0.10.07 Size concepts..... 23

0.10.08 Money: pennies..... 24

0.10.09 Instruments of measurement..... 32

0.10.10 Time relationships..... 37

0.10.11 Comparative size terms..... 39

0.10.12 Coins: nickel and dime..... 4[illegible]

0.10.13 Money: quarters through dollar bill..... 53

Topic 12: Graphs, Probability, Statistics

0.12.01 Number relationships..... 28

0.12.02 Graph reading..... 41

0.12.03 Chance events..... 45

Topic 13: Problem Solving

0.13.01 Problem solving: language..... 3

0.13.02 Problem solving: one-to-one correspondence..... 4

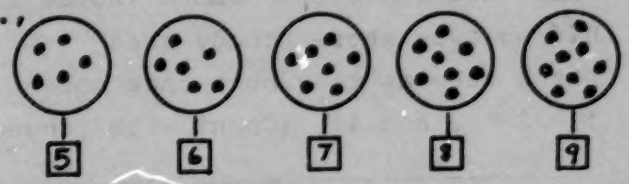
0.01.11 NUMERALS FIVE (5) THROUGH NINE (9)

(4 lessons)

PERFORMANCE OBJECTIVES

The student will be able to...

0.01.11.01 associate the numerals 5 through 9 with a group (set, lot, bunch, heap, pile) having five through nine objects;
e.g.,



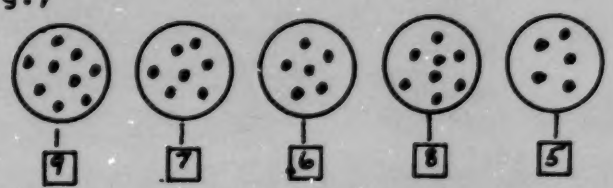
0.01.11.02 recognize and identify the symbols 5 through 9 as numerals for the numbers five through nine;
e.g.,

5, 6, 7, 8, 9

0.01.11.03 write the numerals 5 through 9;
e.g.,

5 ,5 6 ,6 7 ,7 8 ,8 9 ,9

0.01.11.04 identify the number of elements in a given group (5 through 9).
e.g.,



0.01.11

VOCABULARY

TERMS	SYMBOLS
five	5
six	6
seven	7
eight	8
nine	9

GETTING STARTED

Teach the fingerplay, "Here is the Beehive."

Here is the beehive. (Show a fist face down.)
Where are the bees? (Look inside fist.)
Hiding away where nobody sees
Watch them as they buzz once more
1 - 2 - 3 and 4. (Count with fingers beginning with the thumb.)

Teach the following rhyme. You may wish to have the children demonstrate the actions suggested in the rhyme.

Let's all say number one,
One, One, we have fun.
Let's all say number two,
One, two, I see you.
Let's all say number three,
One, two, three - touch your knee.
Let's all say number four,
One, two, three, four - close the door.

Say, "What did we do when we counted 1? Who did I see when we counted 2? What did we do when we counted 3? What did we do when we counted 4?"

0.01.11

0.01.11.01 associate the numerals 5 through 9 with a group (set, lot, bunch, heap, pile) having five through nine objects

STRATEGY 1: Prepare pictures of five through nine objects and a set of cards numbered 5 through 9. Display the picture of five objects (e.g., birds). Say, "How can we find how many birds there are? (by counting) Let's count the birds in this picture, one, two... How many birds are there?" (5) Display the numeral card 5. Point to the 5 and say, "This numeral tells us how many birds there are. What numeral is it?" (5) Tape the picture on the chalkboard and tape the numeral card below it.

Repeat this procedure with the other pictures and numeral cards.

STRATEGY 2: Prepare large cards numbered 5 through 9. Prepare and distribute 5 discs to each student. Ask the students to count their discs. Say "How many discs do you have?" (5) Display the card labeled 5. Say, "This card tells us how many discs we have placed on our desks. What numeral is shown on this card?" (5)

Repeat this procedure by distributing additional discs, one at a time, through 9.

0.01.11.02 recognize and identify the symbols 5 through 9 as numerals for the numbers five through nine

STRATEGY 1: Prepare numeral cards 5 through 9. Prepare and distribute nine cubes to each student. Display the numeral 5. Say, "What numeral does this card say? Use your cubes to make a group that shows that amount." Repeat this procedure for 6 through 9.

0.01.11

STRATEGY 2: Distribute sets of nine plastic keys. Prepare five key rings made from pipe cleaners and label them 5 through 9. Display one key ring. Say, "What numeral is attached to this key ring? Let's place that number of keys on the key ring." Continue this procedure for the other key rings.

0.01.11.03 write the numerals 5 through 9

STRATEGY 1: Prepare and distribute sandpaper numerals, 5 through 9, to groups of students. Say, "These are sandpaper numerals. With your pointer finger, feel the numeral 5 and say, '5'." Demonstrate the proper procedure for tracing the numeral with your finger and ask the students to do the same. After the students have traced the numeral 5, demonstrate the proper procedure for writing 5. Ask the students to do the same.

Repeat this procedure with the other numerals.

STRATEGY 2: Prepare and distribute small chalkboards or paper and pencils, crayons or markers. Ask several students to come to the chalkboard. Say, "I will recite a poem which will help you write the numerals 5, 6, 7, 8 and 9. Listen to the poem. Then we will all write the numerals together.

Fat old 5 goes down and around
Put a hat on top and see what you found

Around and a loop,
The numeral 6 has a hoop.

Across and down from heaven
Now we made a numeral seven

Make an S but do not wait
Go back up and make an eight,

A circle and a line
Make the numeral 9."

0.01.11

0.01.11.04 identify the number of elements in a given group (5 through 9)

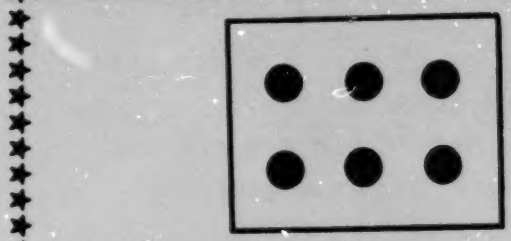
STRATEGY 1: Prepare and distribute groups of five through nine pegs, in envelopes, to each student. Say, "How can you tell how many pegs you have? Let's count our pegs." Repeat this procedure for each group of objects.

STRATEGY 2: Prepare paper cups and lima beans. Distribute paper cups filled with 5 lima beans to each student. Say, "Let's turn our cups over. How can you tell how many beans you have? (by counting) Let's count the beans. How many beans do you have?" Repeat this procedure filling cups with groups of 6 through 9 beans.

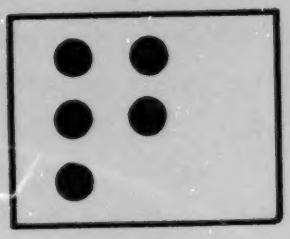
P.O. 0.01.11.01

NAME: _____ CLASS: _____

Draw a line from the dot card to the numeral.



6



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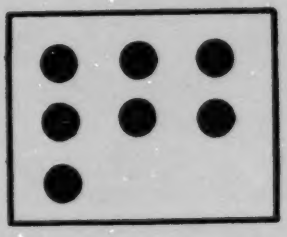
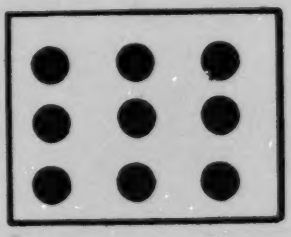


5



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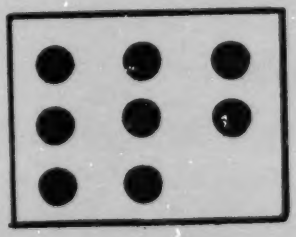

9

P.O. 0.01.11.01

NAME: _____ CLASS: ____

Color the correct number of objects for each numeral.

8	
5	
6	
7	

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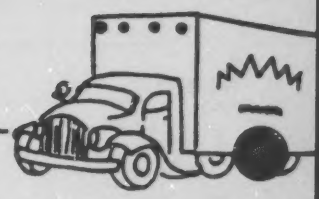
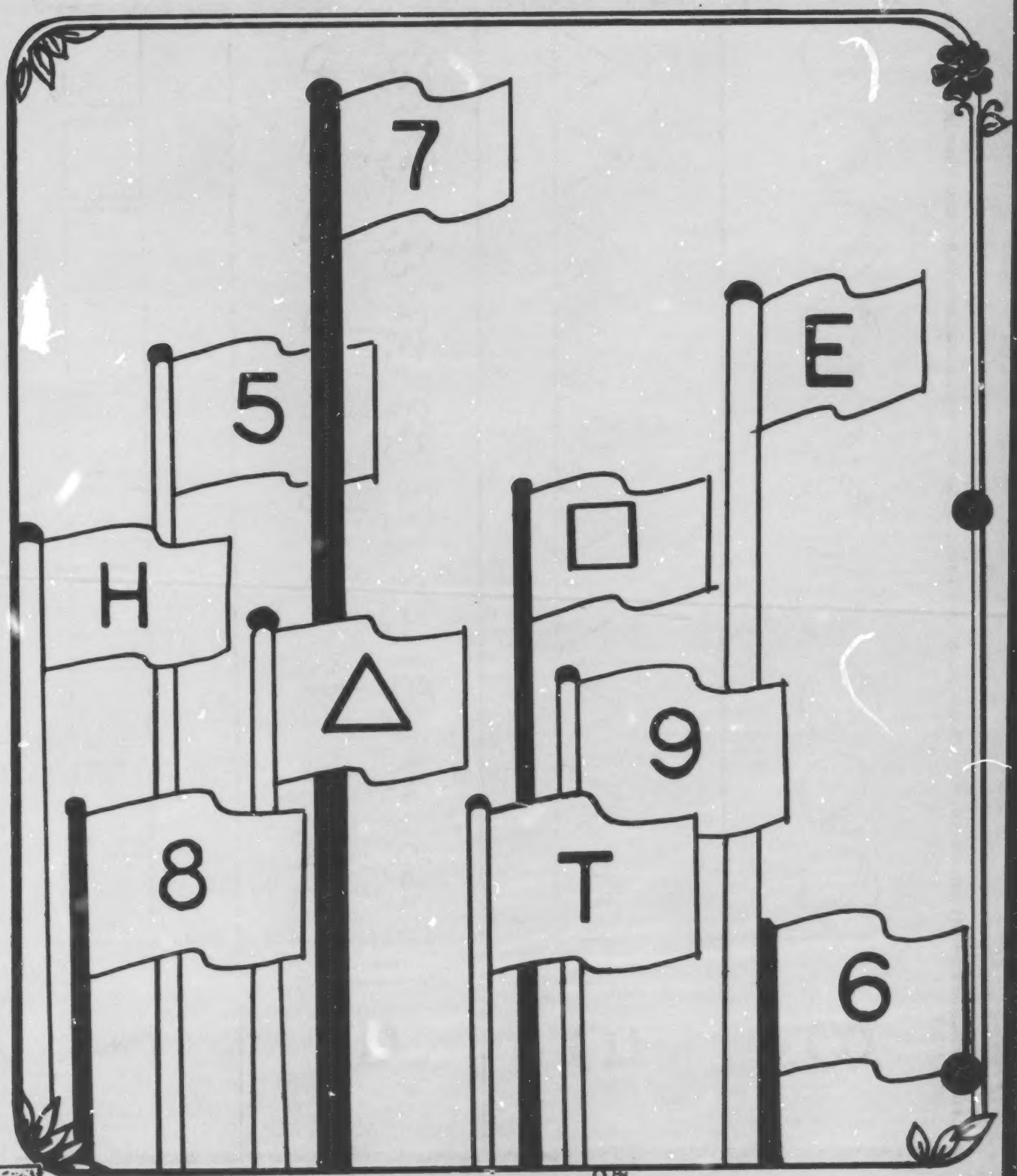
P.O. 0.01.11.02

NAME: _____ CLASS: _____

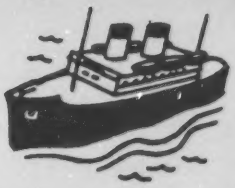


Find the numerals.
Color the flags which have numerals.

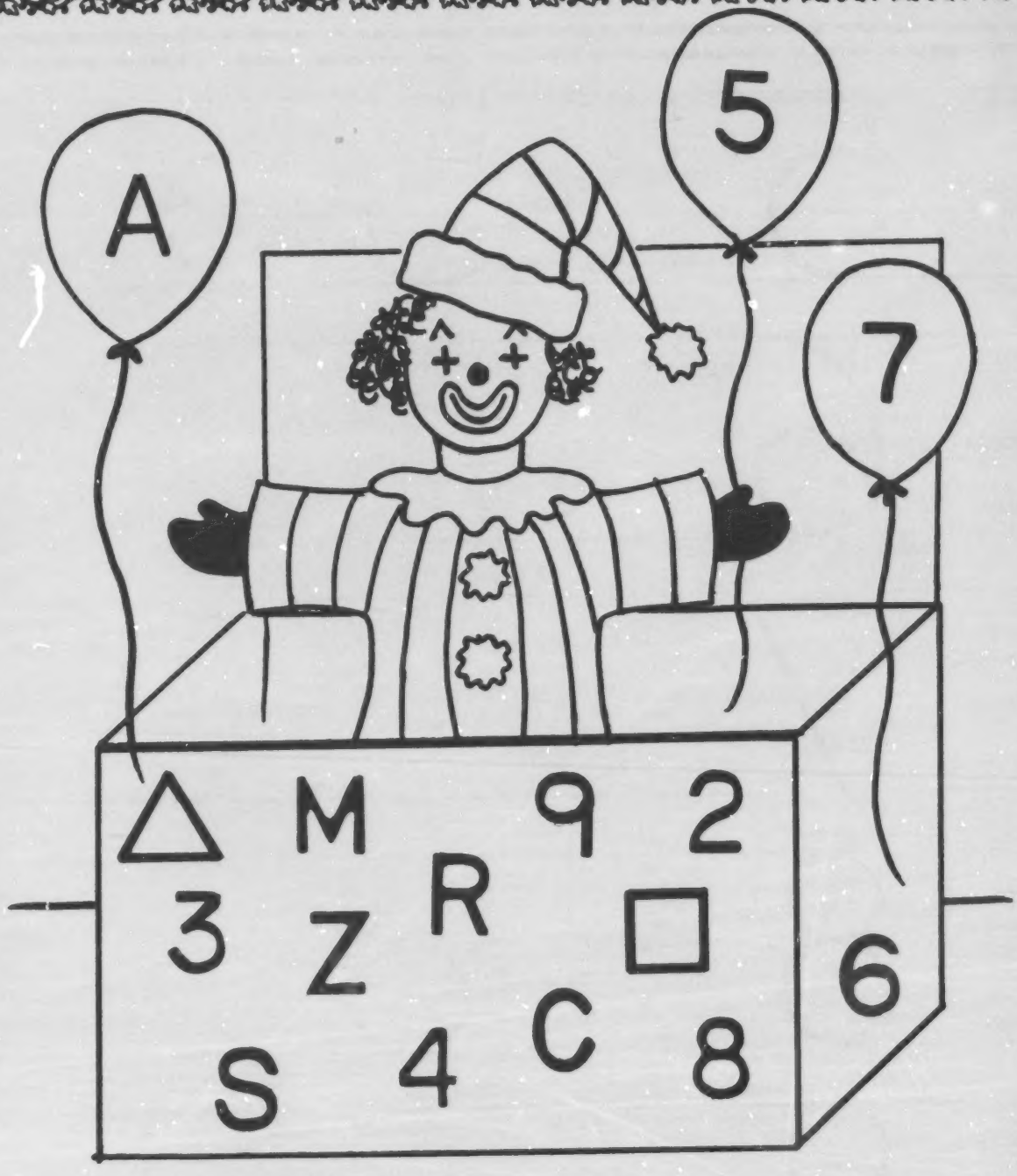


P.O. 0.01.11.02

NAME: _____ CLASS: _____



Draw a circle around each numeral.



P.O. 0.01.11.03

NAME: _____ CLASS: _____

Trace the dotted numerals.

5 5 5

6 6 6

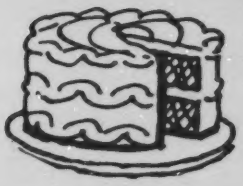
7 7 7

8 8 8

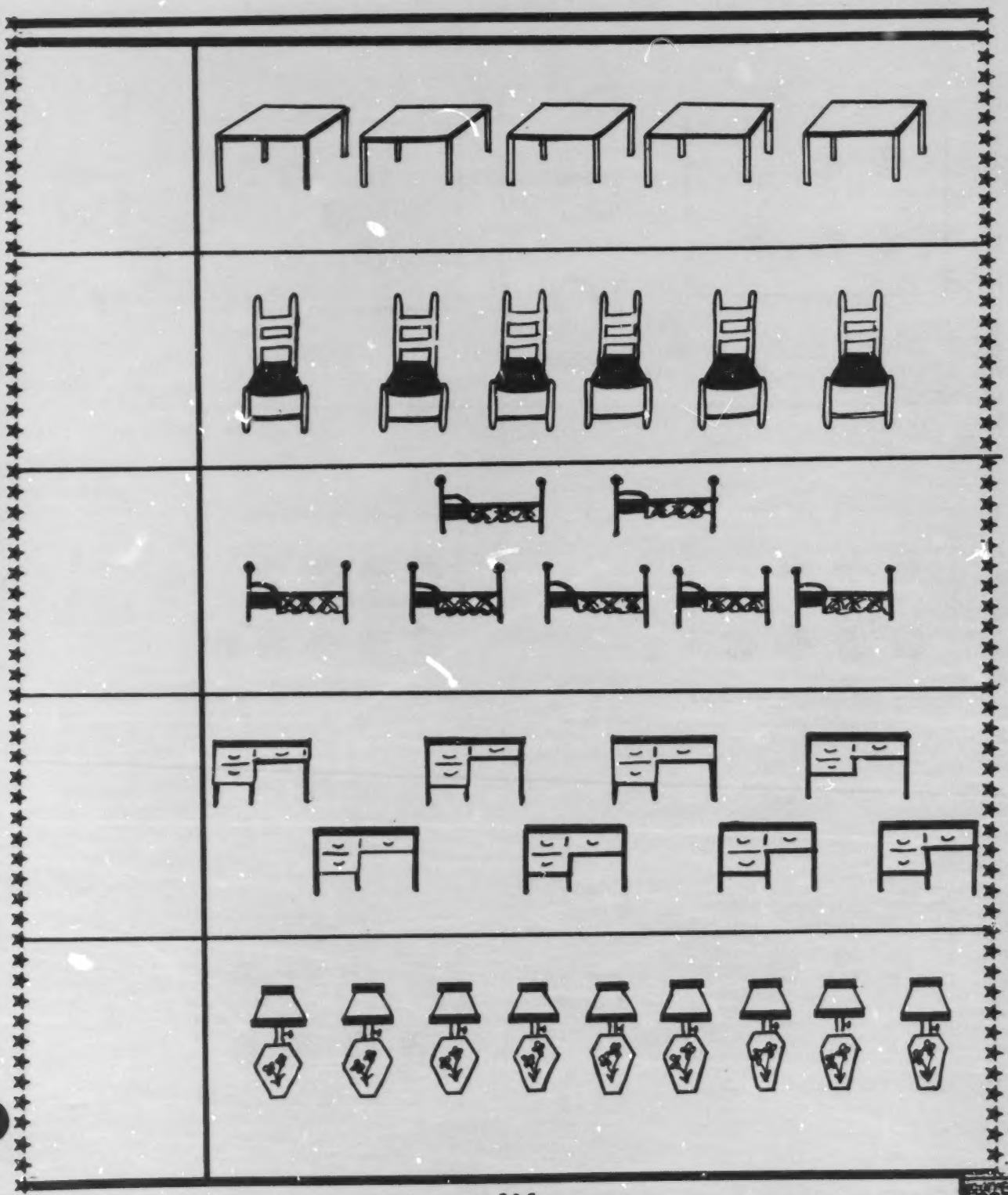
9 9 9

P.O. 0.01.11.04

NAME: _____ CLASS: _____

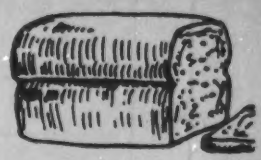


Write the numeral which shows how many. Color each group.

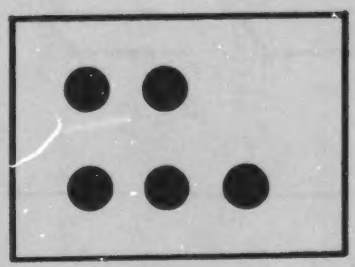
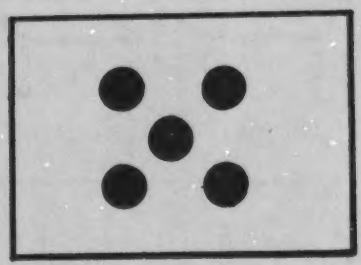
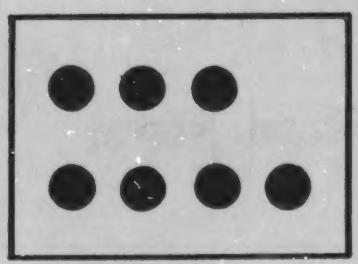
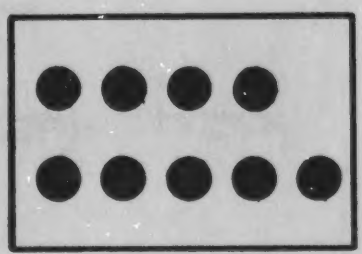
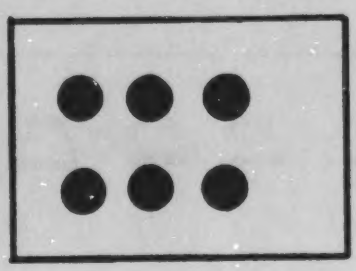
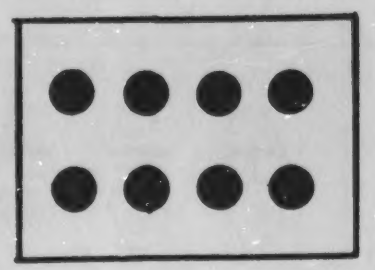


P.O. 0.01.11.04

NAME: _____ CLASS: _____



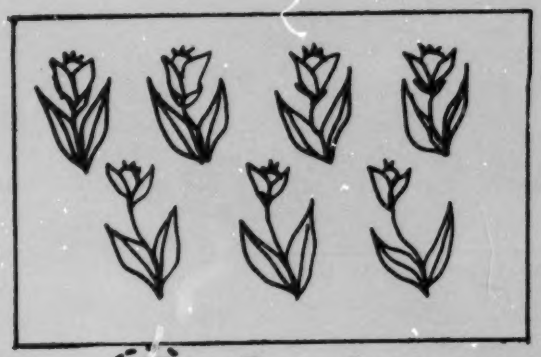
Circle the numeral which shows how many dots are on each card.

 5 6 7	 5 6 7	32
 6 7 8	 7 8 9	
 5 (6) 7	 7 8 9	31

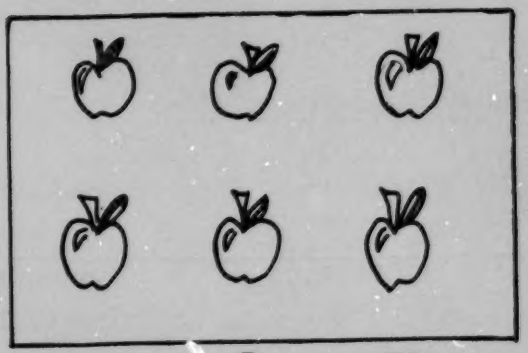
P.O. 0.01.11.04

NAME: _____ CLASS: _____

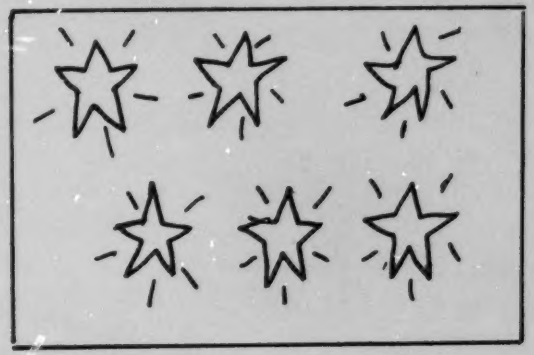
Circle the numeral that shows how many objects are in each group.



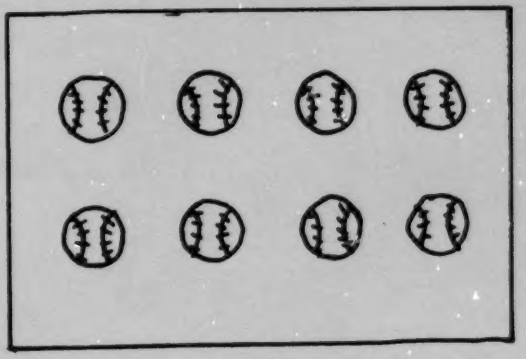
7 8 9



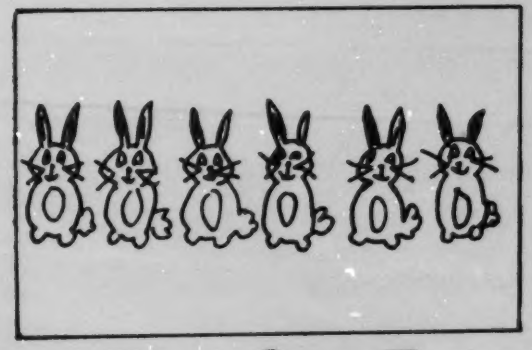
5 6 7



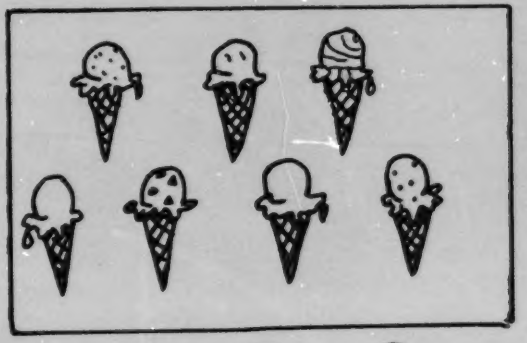
6 7 8



7 8 9



5 6 7



6 7 8

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0.01.12 NUMERAL ZERO (0)

(4 lessons)

PERFORMANCE OBJECTIVES

The student will be able to...

0.01.12.01 associate the numeral 0 with a group (set, lot, bunch, heap, pile) having no objects;
e.g.,

0.01.12.02 recognize and identify the symbol "0" as a numeral for the number zero;
e.g.,

1, 5, 0, 9, 3, 4

0.01.12.03 write the numeral 0;
e.g.,

0 , 0

0.01.12.04 identify the elements in a group of zero objects.
e.g.,

34

0.01.12

VOCABULARY

TERMS	SYMBOLS
zero none nothing empty set	0

GETTING STARTED

Prepare and distribute envelopes containing groups of 1 through 9 small objects and an empty box. Display large numeral cards, 1 through 9. Say, "How can we tell how many objects are in the envelope? Let's count the objects." Display the numeral 1 card and ask a student to identify the numeral. Say, "Who found one object? What object was in the envelope?"

Repeat this procedure for each numeral card.

Sing and dramatize the fingerplay:

Five Little Pumpkins Sitting on a Gate

Five little pumpkins sitting on a gate, (Five fingers extended - one finger for each Pumpkin.)
The first one said, "Oh my, it's getting late." (Wiggle thumb. Put it down.)
The second one said, "There are witches in the air." (Wiggle index finger.)
The third one said, "Oh, we don't care." (Wiggle middle finger.)
The fourth one said, "Let's run, let's run." (Wiggle fourth finger.)
The fifth one said, "We're ready for some fun." (Wiggle pinky.)
"Oooooooo" went the wind and out went the lights, and the five little pumpkins ran out of sight. (Wiggle five fingers in running away fashion. Hide hand behind back.)

Getting Started in the All-Day Kindergarten
New York City Board of Education, 1983

0.01.12

0.01.12.01 **associate the numeral 0 with a group (set, lot, bunch, heap, pile) having no objects**

STRATEGY 1: Prepare four bags containing one through four cubes and an empty bag. Pass around the bag containing 1 cube. Say, "How many cubes do you feel?" Repeat this procedure with the other bags.

Pass around the empty bag. Say, "How many cubes do you feel? The bag is empty. It does not have any cubes in it." Write the numeral zero on the chalkboard. Say, "This is the numeral zero. It tells us that there are no objects in the bag."

STRATEGY 2: Prepare and display the numeral cards 0 through 5. Sing and dramatize the fingerplay below.

<u>Five Little Chickadees</u>

Five little chickadees sitting on the floor,
(Hold up hand, fingers extended.)
One flew away and then there were four.
(Fold down one finger.)
Four little chickadees sitting in a tree;
One flew away and then there were three.
(Fold down 2 fingers.)
Three little chickadees looking at you;
One flew away and then there were two.
Two little chickadees sitting in the sun;
One flew away and then there was one.
One little chickadee sitting all alone;
It flew away and then there were none!

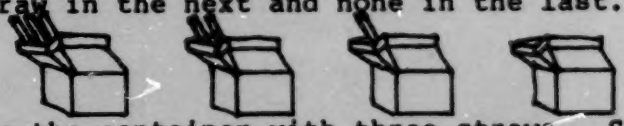
Display the appropriate numeral card as you sing/say each number.

0.01.12

0.01.12.02 **recognize and identify the symbol "0" as a numeral for the number zero**

STRATEGY 1: Prepare a set of cards numbered 0 through 9. Display the numeral card 1. Say, "Here is the numeral 1. Let's clap one time." Repeat this procedure using other numerals. Display the numeral zero card. Say, "Here is the numeral zero. Can we clap it out? (No) Why? (Zero means no claps.) Let's form a zero with one hand." Touch your pointer and thumb together to form a zero.

STRATEGY 2: Prepare four milk containers, six drinking straws and a set of cards numbered 0 through 3. Arrange the straws and containers as follows. Put three straws in one container, two straws in the next, one straw in the next and none in the last.

e.g., 

Hold up the container with three straws. Say, "How many straws are in this container? Look at the cards on the chalkboard ledge." Ask a student to find the card that shows the number of straws in the container. Say, "What numeral is on the card you chose?" (3) Tape the card to the container.

Repeat this procedure for the other containers and cards.

0.01.12.03 **write the numeral 0**

STRATEGY 1: Distribute crayons and zeros made of sandpaper. Demonstrate and say, "This is the numeral zero. Let's trace it with our fingers. Start at the top and go around." After the students have traced the zero, ask them to practice writing zeros on their paper.

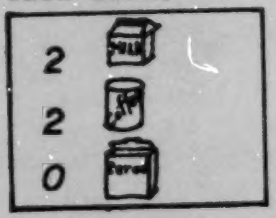
0.01.12

STRATEGY 2: Write five zeros on the chalkboard. Ask five students to come to the chalkboard. Say, "Let's trace the zero. Begin at the top and go around." Continue this procedure by asking students to write the numeral zero in the air, on the chalkboard and/or on the easel.

0.01.12.04 identify the elements in a group of zero objects

STRATEGY 1: Prepare and display the following items: empty milk containers, coffee cans, soup cans, cereal boxes and juice cans. Prepare individual picture shopping lists for each student. Write a different numeral next to each item. Be sure to include a zero on each list.

e.g.,



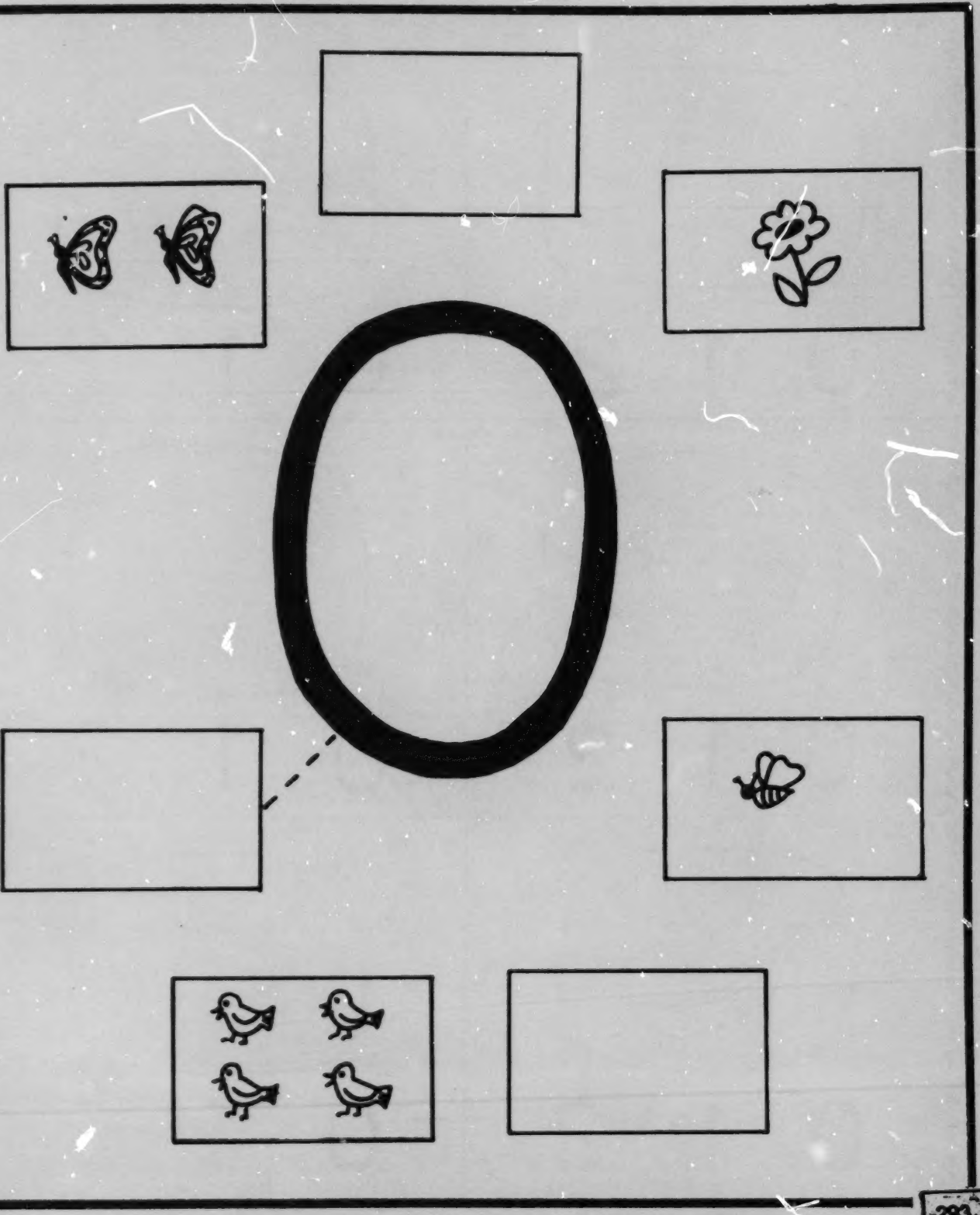
Distribute the shopping lists. Say, "We are going on a make believe shopping trip. Look at your shopping list." Ask several students to "read" their shopping lists and discuss what they will buy. Ask the students to go shopping for the items on their lists and tell the "cashier" how many items he/she bought, e.g., "I bought two containers of milk, two cans of coffee and zero boxes of cereal."

STRATEGY 2: Arrange the students into groups of 5. Say, "How many students are in your group? How many students are wearing pants? How many students are wearing dresses? How many have a pink elephant in their pocket?" (0) Repeat this procedure by asking non-sensical questions to which the answer must be zero.

P.O. 0.01.12.01

NAME: _____ CLASS: _____

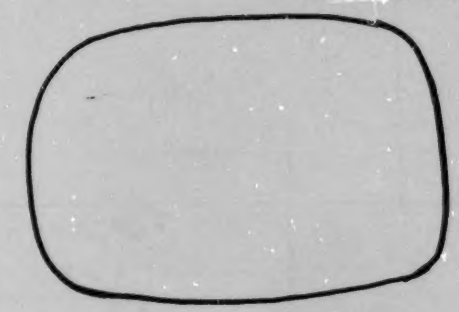
Trace the zero with your finger.
Draw a line to match the zero with each empty group.



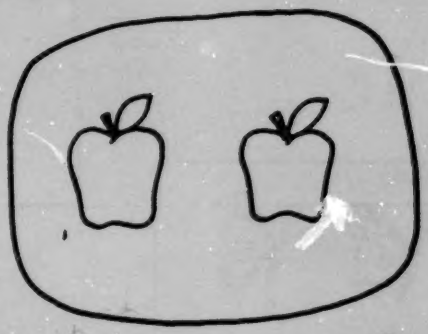
P.O. 0.01.12.01

NAME: _____ CLASS: _____

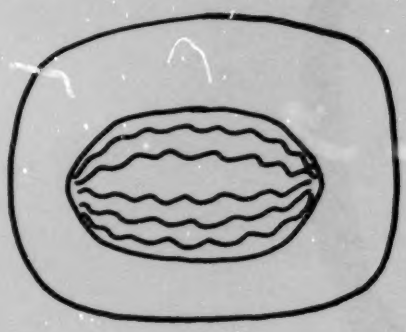
Count the pieces of fruit in each group. Circle the numeral.



0 1 2

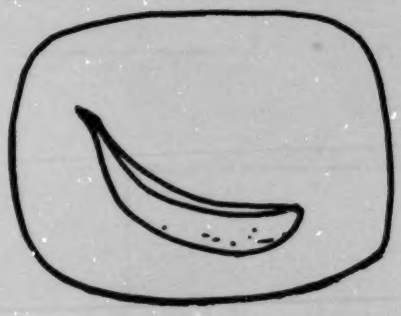


0 1 2



0 1 2

0 1 2



0 1 2

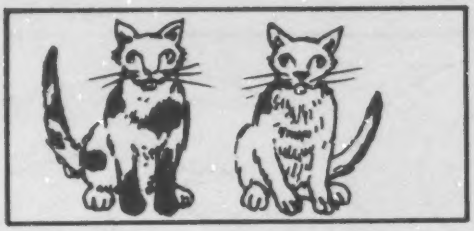
0 1 2

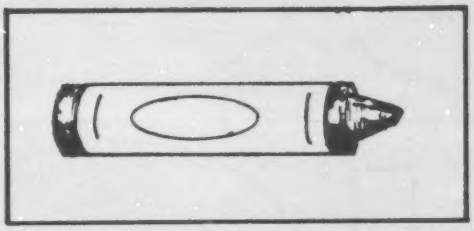
294

P.O. 0.01.12.02

NAME: _____ CLASS: _____

Draw a line to connect each picture with the numeral that tells how many objects are in the picture.





1

0

2

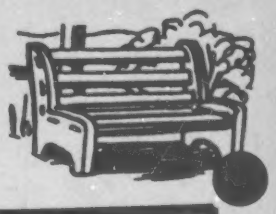
0

3

0

P.O. 0.01.12.02

NAME:_____ CLASS:_____



Color the zeros in each row.

0	7	0
10	0	97
50	30	0
0	20	0
0	0	4

43

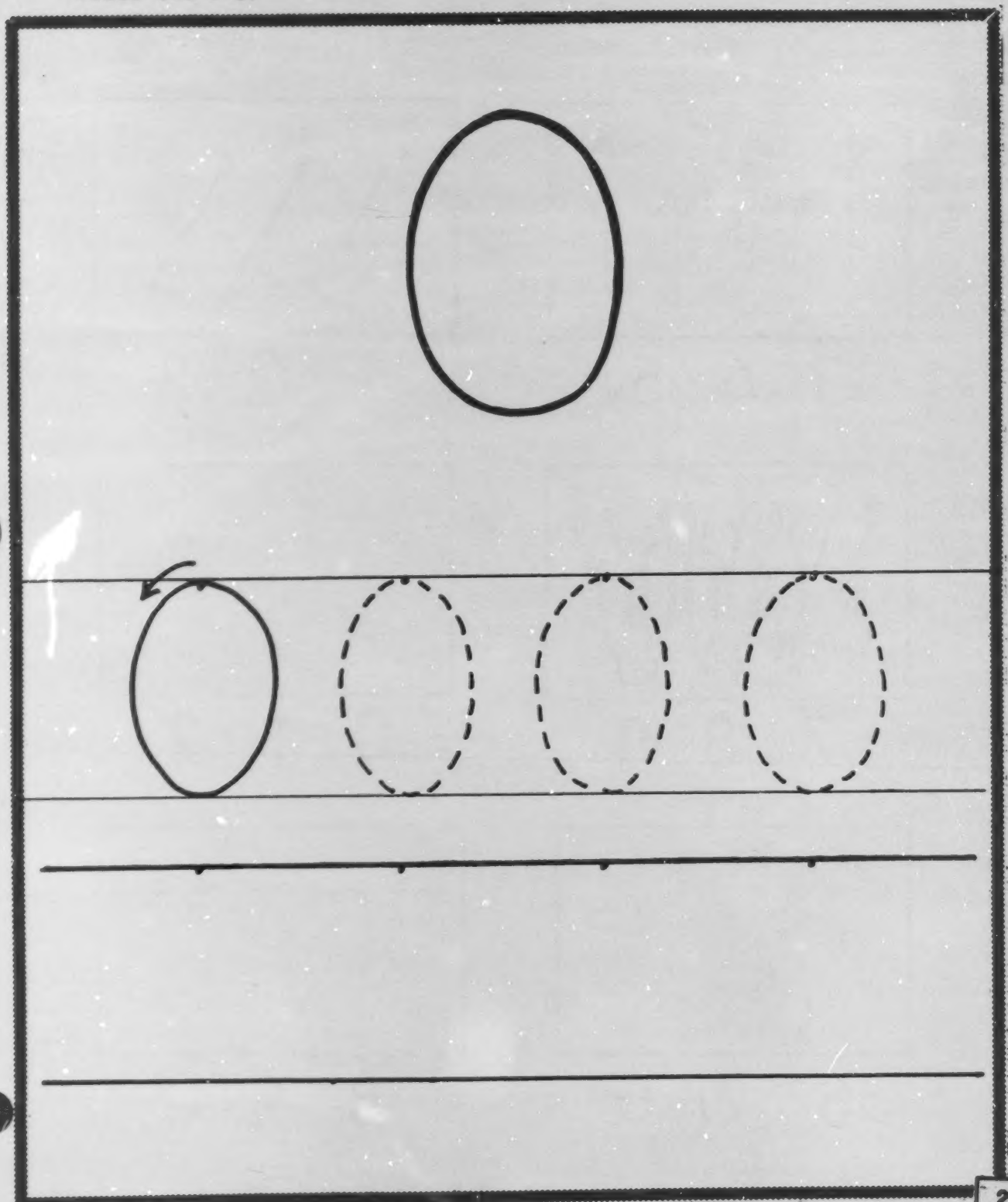
42

298

P.O. 0.01.12.03

NAME: _____ CLASS: _____

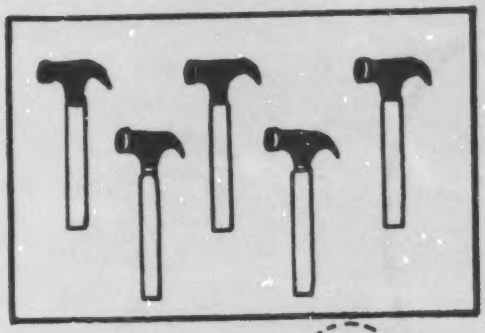
Trace the 0's.
Write the 0's.



P.O. 0.01.12.04

NAME: _____ CLASS: _____

Count the objects in each set.
Circle the numeral.



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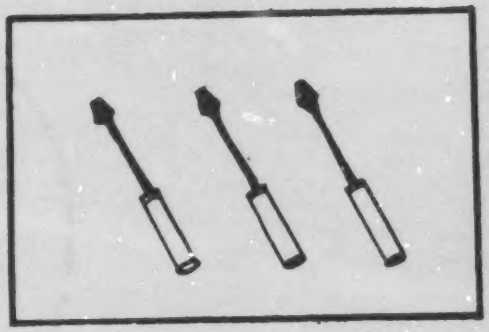

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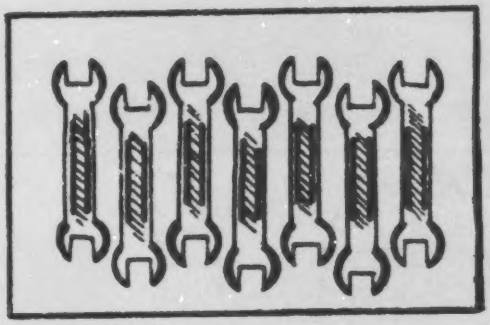

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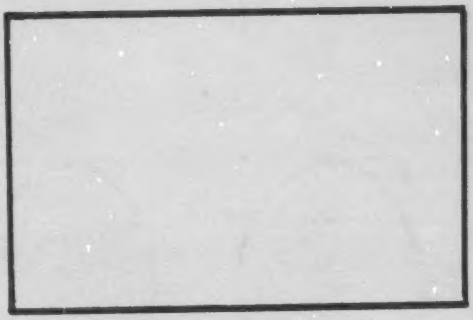

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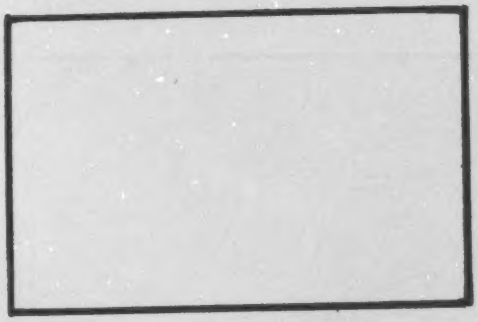

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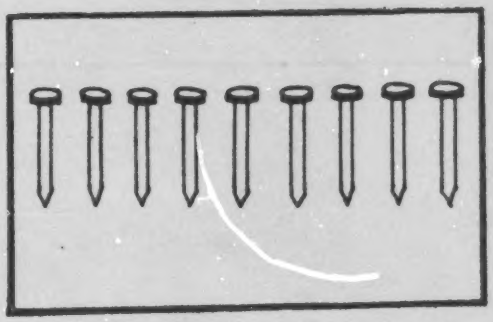


8 9 0

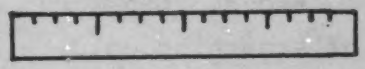
0.10.09 INSTRUMENTS OF MEASUREMENT

(3 lessons)

PERFORMANCE OBJECTIVES

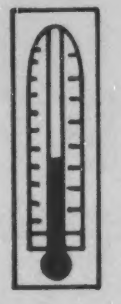
The student will be able to...

0.10.09.01 recognize that a ruler is an instrument used to measure length;
e.g.,
What do we use to measure length?



0.10.09.02 recognize that a scale is an instrument used to measure weight (heavy/light);
e.g.,
What do we use to tell how heavy something is?

0.10.09.03 recognize that a thermometer is an instrument used to measure temperature (hot/cold).
e.g.,
Today is warmer than yesterday.
What do we use to tell how hot or cold it is?



0.10.09

VOCABULARY

TERMS	TERMS
instruments	weigh, weight
tools	heavy/light
measure(ment)	hot/cold
length	thermometer, temperature
scale	

GETTING STARTED

Cut pictures from magazines which show the concept of hot and cold, e.g., sun, beach, skiers, snow. Divide a table in half and designate one part "hot" by labeling it with a picture of something hot, e.g., stove. Label the other side "cold" by displaying a picture of something cold, e.g., refrigerator. Ask the students to place the pictures on the appropriate portion of the table and say either "hot" or "cold".

Prepare three pieces of string varying the color and the length. Use each piece of string to measure the length of a book. Ask the students to describe the results using the terms as long as, longer than, and shorter than.

0.10.09

0.10.09.01 **recognize that a ruler is an instrument used to measure length**

STRATEGY 1: Say, "A long time ago people measured distance by the size of their feet. I will show you what they did." Walk between two classroom objects which are less than nine paces apart, e.g., Jose's desk and the window, the easel and the wastebasket. Say, "Let's count each step as I walk between the easel and the basket. The length is 5 footsteps. Would it be the same if a student walked the same distance? Why?" Ask a student to walk from the easel to the wastebasket and count the number of steps. Say, "People found they needed a measuring instrument or tool that was always the same size. So the ruler was invented." Pass out rulers for the pupils to examine. Ask the students to measure their ruler against their partner's ruler. Help the students to determine that all twelve inch rulers are the same size.

STRATEGY 2: Prepare and distribute twelve inch strips of paper, various pieces of chalk and twelve inch rulers.

Demonstrate and say, "Place your pieces of chalk end to end on top of your strip of paper. How many pieces of chalk did you need? Did everyone need the same amount? Why? Now remove the chalk. Place the ruler on top of the strip of paper. How many rulers do you need? Did everyone need the same amount? Why do you think that happened?" Elicit that all twelve inch rulers are the same size.

0.10.09

0.10.09.02 **recognize that a scale is an instrument used to measure weight (heavy/light)**

STRATEGY 1: Prepare and display a balance scale and common classroom objects. Say, "Which of these do you think weighs the most? Which weighs the least? Which are about the same weight? What could we use to tell us which weighs the most? The heavier one weighs the most. The lighter one weighs the least." Ask a student to use the balance scale to weigh a pencil and a book. Say, "Which one is heavier? ...lighter?" Repeat this procedure for the other items.

STRATEGY 2: Prepare and display a balance scale and various objects to be weighed. Include objects that are large and light, e.g., balloon, as well as objects that are small and heavy, e.g., padlock. Select two items and display them. Ask the students to guess which object is heavier. Record the students' guesses on the chalkboard. After each student has had a chance to guess, use the pan balance and let the students check their guesses.

Repeat this procedure for other pairs of items.

0.10.09

0.10.09.03 recognize that a thermometer is an instrument used to measure temperature (hot/cold)

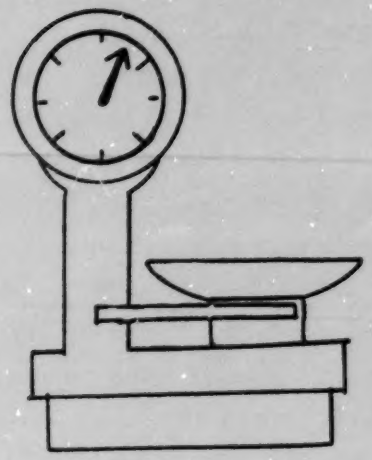
STRATEGY 1: Prepare and display both a real thermometer and a cardboard thermometer with a moveable red ribbon. Holding the real thermometer, say, "This instrument is used to measure how hot or cold things are. It is called a thermometer." Hold up the model and say, "This is also a thermometer but it is not real. Both of these thermometers have numbers and a red line which moves up and down." Demonstrate the ribbon thermometer. Say, "Thermometers measure temperature. Temperature tells us how hot or cold something is. What happens to the red line when the temperature of the air gets hot? When it gets cold?" Demonstrate. Say, "In which direction does the red line usually move in the summer? ...in the winter? Why?" Ask each student to move the ribbon on the model to show hot or cold temperature. Hang an outdoor and indoor thermometer so that students can observe and discuss the changes in the temperature daily.

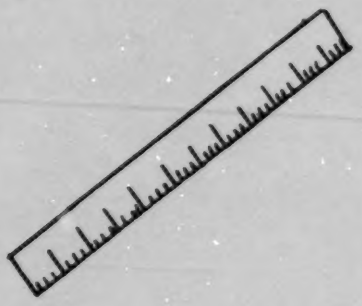
STRATEGY 2: Prepare and display an oven, meat and oral thermometer. Say, "These instruments are used to measure temperature. Which instrument is used to measure temperature in an oven? ...of meat? ...of our body?" Draw pictures of each type of thermometer.

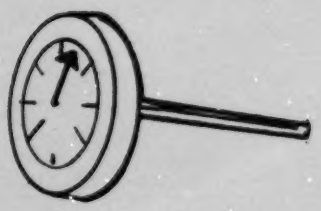
P.O. 0.10.09.01 -.03

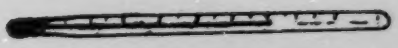
NAME:_____ CLASS:_____

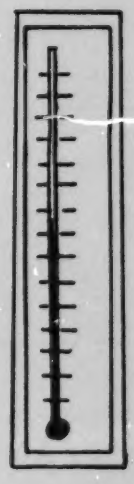
Use red to color the instruments that measure length.
Use green to color the instruments that measure weight.
Use yellow to color the instruments that measure temperature.

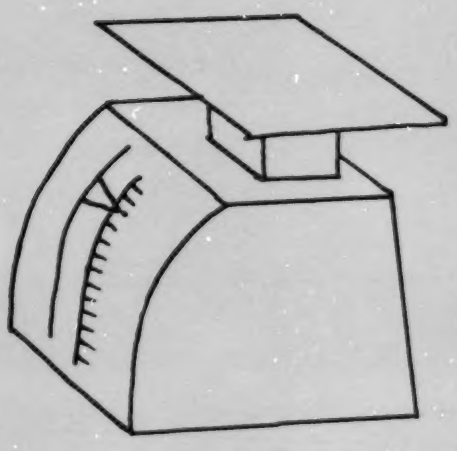












0.01.13 NUMERAL TEN (10)

(4-5 lessons)

PERFORMANCE OBJECTIVES

The student will be able to...

0.01.13.01 associate the numeral 10 with a group (set, lot, bunch, heap, pile) having ten objects;
e.g.,

0.01.13.02 recognize and identify the symbol "10" as a numeral for the number ten;
e.g.,

6, 10, 9, 7, 4, 8

0.01.13.03 write the numeral 10;
e.g.,

10, 10

0.01.13.04 recite the numerals 1 through 10 in correct counting order;
e.g.,

1, 2, 3, ..., 10

0.01.13.05 identify the number of objects in a group of ten objects.
e.g.,

306

0.01.13

VOCABULARY

TERMS	SYMBOLS	TERMS	SYMBOLS
one	1	seven	7
two	2	eight	8
three	3	nine	9
four	4	ten	10
five	5	zero	0
six	6		

GETTING STARTED

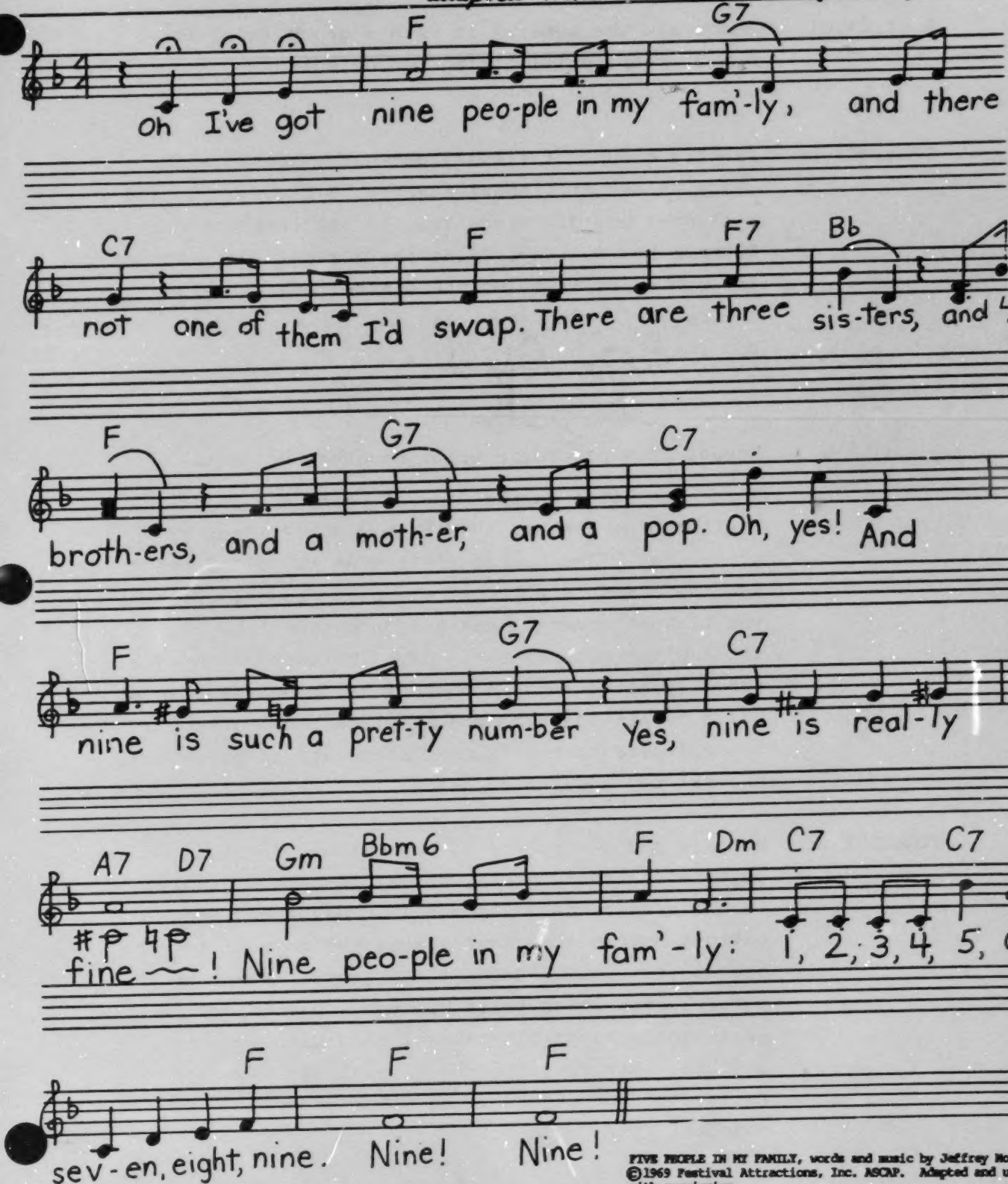
Prepare and distribute boxes containing from 0 through 9 objects to ten students. Display numeral cards 0-9. Say, "We are detectives. You must find the numeral which matches the number of objects in your box. Open your box. What do you have in your box? How many objects are in your box? Find the numeral which tells how many objects are in your box." Repeat this procedure by exchanging boxes until each student has had a turn with each box.

Teach the song, "There are Nine People in My Family." Ask students to make nine finger puppets. As each number is said, raise an additional puppet until nine faces are shown.

0.01.13

Nine People in My Family

*adapted from "Five People in My Family"**



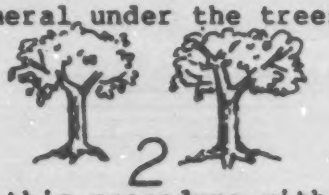
FIVE PEOPLE IN MY FAMILY, words and music by Jeffrey Moss
©1969 Festival Attractions, Inc. ASCAP. Adapted and used with permission.

0.01.13

0.01.13.01 **associate the numeral 10 with a group (set, lot, bunch, heap, pile) having ten objects**

STRATEGY 1: Prepare groups of flannel cut-outs, ten in each group, a set of flannel numbers, 0 through 10, and a flannel board. Place two flannel trees on the flannel board. Say, "Find the numeral that matches the number of trees on the flannel board. Place the numeral under the trees."

e.g.,



Repeat this procedure with the other cut-outs.

Place ten birds on the flannel board and say, "Let's count the birds in this group." Stop at nine. Say, "The number after nine is called ten." Ask the students to count the birds again. Place the flannel numerals one and zero under the birds to show the numeral ten. Say, "This is the numeral ten. It matches the number of birds on the flannel board." Ask the students to place other groups of ten cut-outs on the flannel board and to place the numeral ten under each group.

STRATEGY 2: Prepare and distribute 11 bags with 0 through 10 objects (buttons, beans, discs) in each. Display the numeral cards 0 through 10. Say, "How many buttons are in your bag? Empty the objects in your bag on your desk. Count the objects. Find the numeral card which tells how many objects are in your bag." Match the numeral card with your objects. Ask the students to exchange bags and repeat this procedure using other groups of objects.

0.01.13

0.01.13.02 **recognize and identify the symbol "10" as a numeral for the number 10**

STRATEGY 1: Distribute a popsicle stick, ten beans and paste to each student. Write a large numeral 10 on the chalkboard. Say, "This numeral is 10. Let's count out ten beans. One, two... Now we will paste the beans on the stick." Demonstrate and check to see that each student pastes ten beans on a stick. Say, "How many beans did you paste on your stick? How do you know?"

STRATEGY 2: Prepare dot cards with 0 to 10 dots, numeral cards 0 through 10, and some duplicate cards (if necessary). Distribute the cards so that each student has either a dot or a numeral card. Ask the students holding numeral cards to find a matching dot card. Repeat this procedure by asking students holding dot cards to find the matching numeral cards.

0.01.13.03 **write the numeral 10**

STRATEGY 1: Distribute a sandpaper numeral 10 card to each student. Say, "This is the numeral 10. The numeral 10 is made by writing the numeral 1 and the numeral 0." Ask the students to trace the numerals. Say, "First let's trace the one. Next, we trace the zero." Repeat this procedure for writing the numeral ten.

STRATEGY 2: Prepare drawing paper and crayons. Write the numeral 10 on the easel or chalkboard. Say, "We are going to write the numeral 10 in the air. First we write the numeral 1 by starting at the top and going down. Then we write the numeral 0 by

0.01.13

STRATEGY 2: cont'd

starting at the top and going around." Repeat this procedure several times. Distribute drawing paper and a crayon to each student and ask the students to practice writing the numeral 10.

0.01.13.04 **recite the numerals 1 through 10 in correct counting order**

STRATEGY 1: Teach the song <u>This Old Man</u>. As you sing each numeral ask the pupils to show the corresponding number of fingers.

<u>This Old Man</u>

This old man, he played one,
He played knick-knack on my thumb.
<u>Refrain</u>
With a knick-knack, paddy whack,
Give your dog a bone,
This old man came rolling home.

This old man, he played two,
He played knick-knack on my shoe. (repeat refrain)

This old man, he played three,
He played knick-knack on my knee. (repeat refrain)

This old man, he played four,
He played knick-knack on my door. (repeat refrain)

This old man, he played five,
He played knick-knack on my hive. (repeat refrain)

This old man, he played six,
He played knick-knack on my sticks. (repeat refrain)

This old man, he played seven,
He played knick-knack up in heaven. (repeat refrain)

This old man he played eight,
He played knick-knack on my gate. (repeat refrain)

This old man, he played nine,
He played knick-knack on my vine. (repeat refrain)

This old man, he played ten,
He played knick-knack once again. (repeat refrain)

STRATEGY 2: Prepare numeral cards, one through ten, and a three inch paper footprint for each student. Play a variation of the game, <u>Giant Steps</u>. Distribute a paper footprint to each student. Say, "Use your

0.01.13

STRATEGY 2: cont'd

footprint to take ten baby steps from your shoulders to your toes. Count each step as you take it - 1, 2, 3, 4, 5, 6, 7, 8, 9, 10."

Repeat this procedure with giant steps, hopping steps and running steps, counting 1 through 10 each time.

0.01.13.05 identify the number of objects in a group of ten objects

STRATEGY 1: Prepare picture cards showing 1 through 10 objects. Distribute one card to each student. Include more cards showing ten objects than the others. Write a large 10 on the chalkboard. Say, "This is the numeral ten. If you have a card with ten pictures, put it under the 10 on the chalkboard." Ask each student to identify the number of objects on his/her card. Continue until all pictures of 10 objects have been placed on the chalkboard ledge.

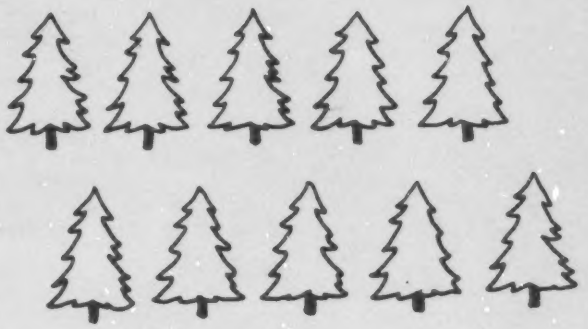
STRATEGY 2: Prepare pieces of string and straws cut into small pieces. Distribute these to each student. Several students should have ten straws while others should have fewer. Give each group of students a container with extra straws. Say, "We need 10 little straws to make a bracelet. Count your straws to see if you have ten. If you have ten, you may string your straws. If you do not have ten, place your pieces back into the container and count out a new group to make ten." Allow students to string their straws to make bracelets.

P.O. 0.01.13.01

NAME: _____ CLASS: _____

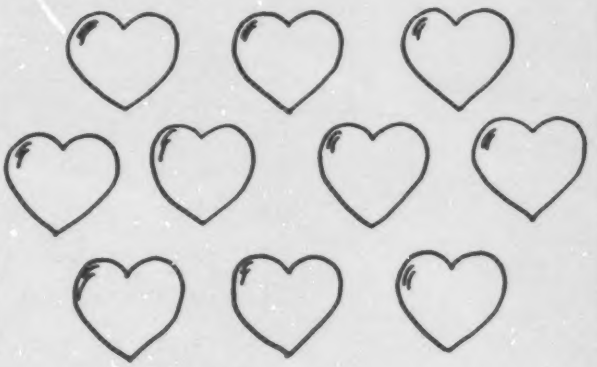
Draw a ring around the numeral which tells the number of objects in each box.

8 9 10



4 10 6

10 7 8

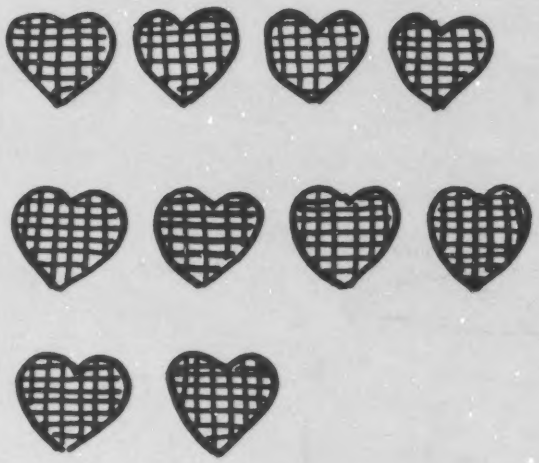


1 3 10

P.O. 0.01.13.01

NAME: _____ CLASS: _____

Draw a circle around the correct numeral.



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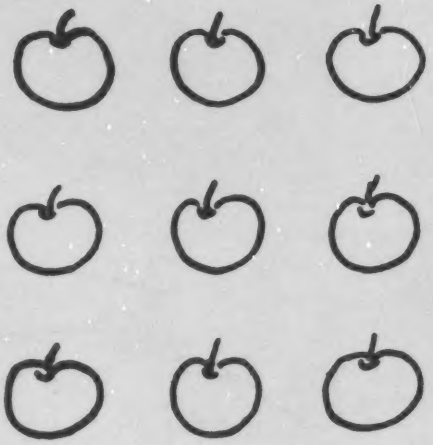
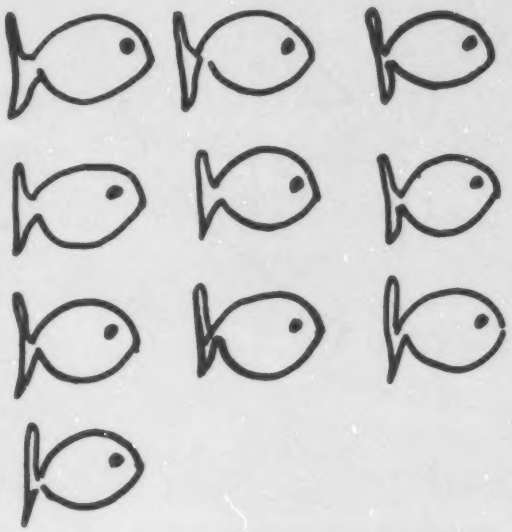
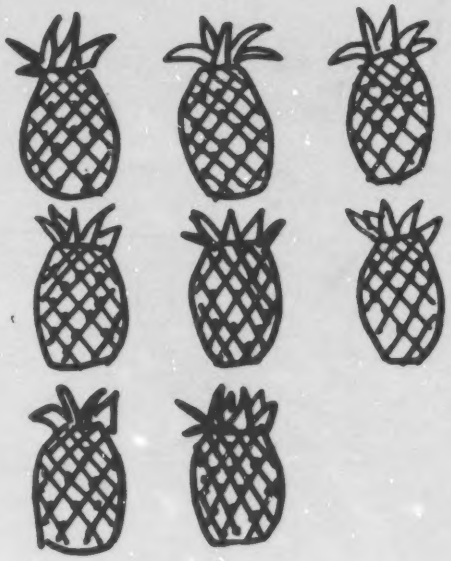


8 9 10



8 9 10

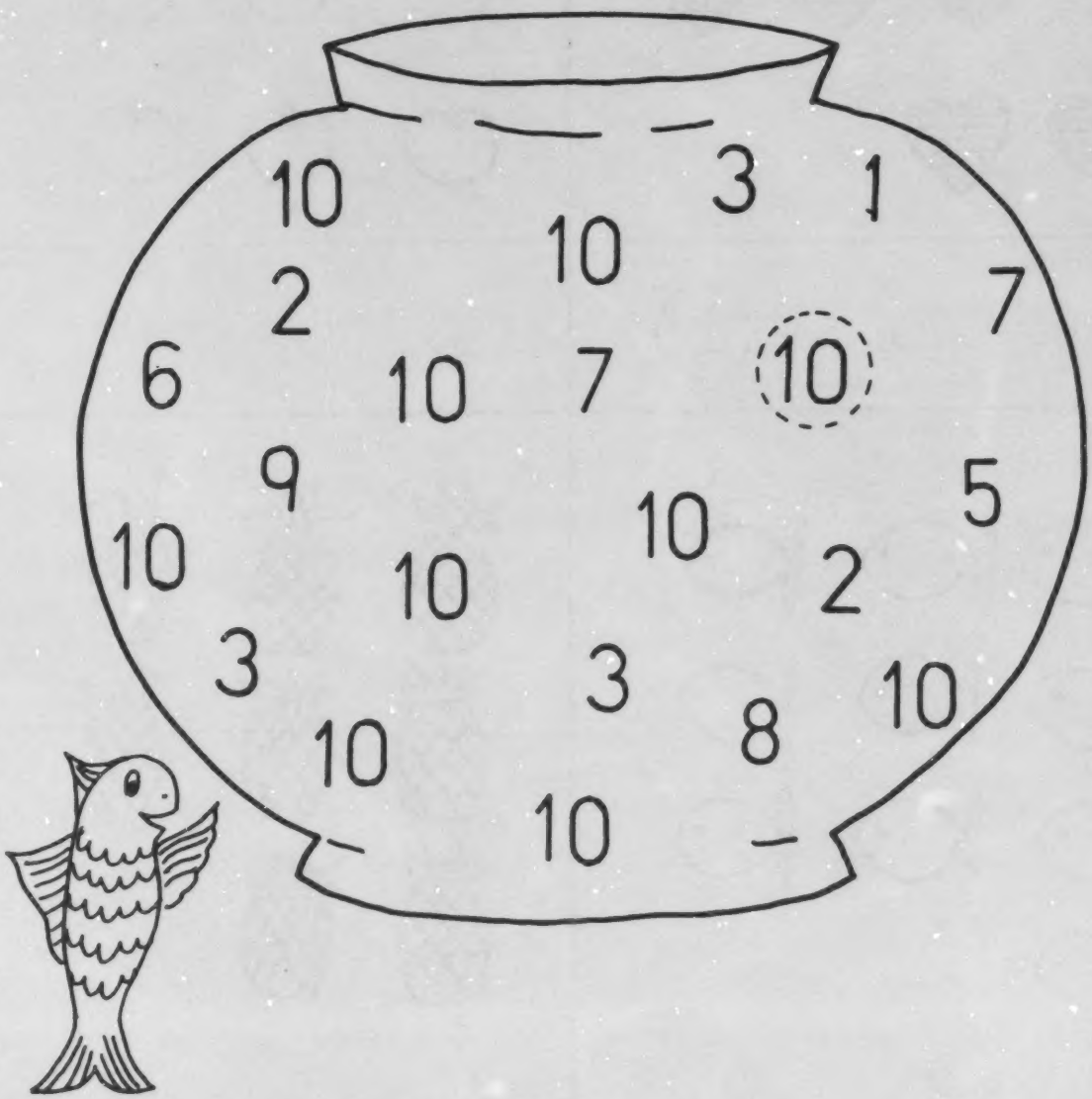


8 9 10

P.O. 0.01.13.02

NAME:_____ CLASS:_____

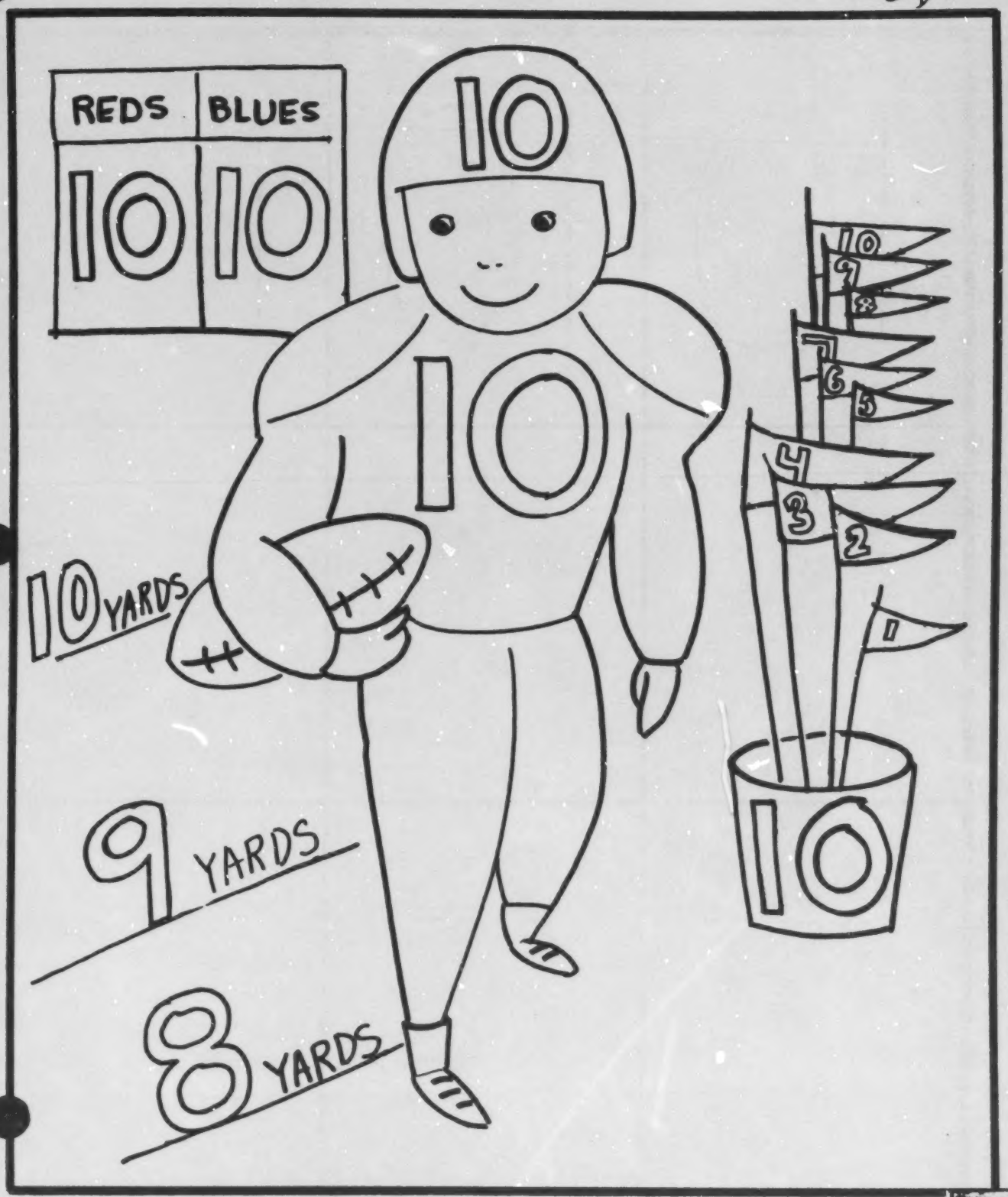
Circle the 10's.



P.O. 0.01.13.02

NAME: _____ CLASS: _____

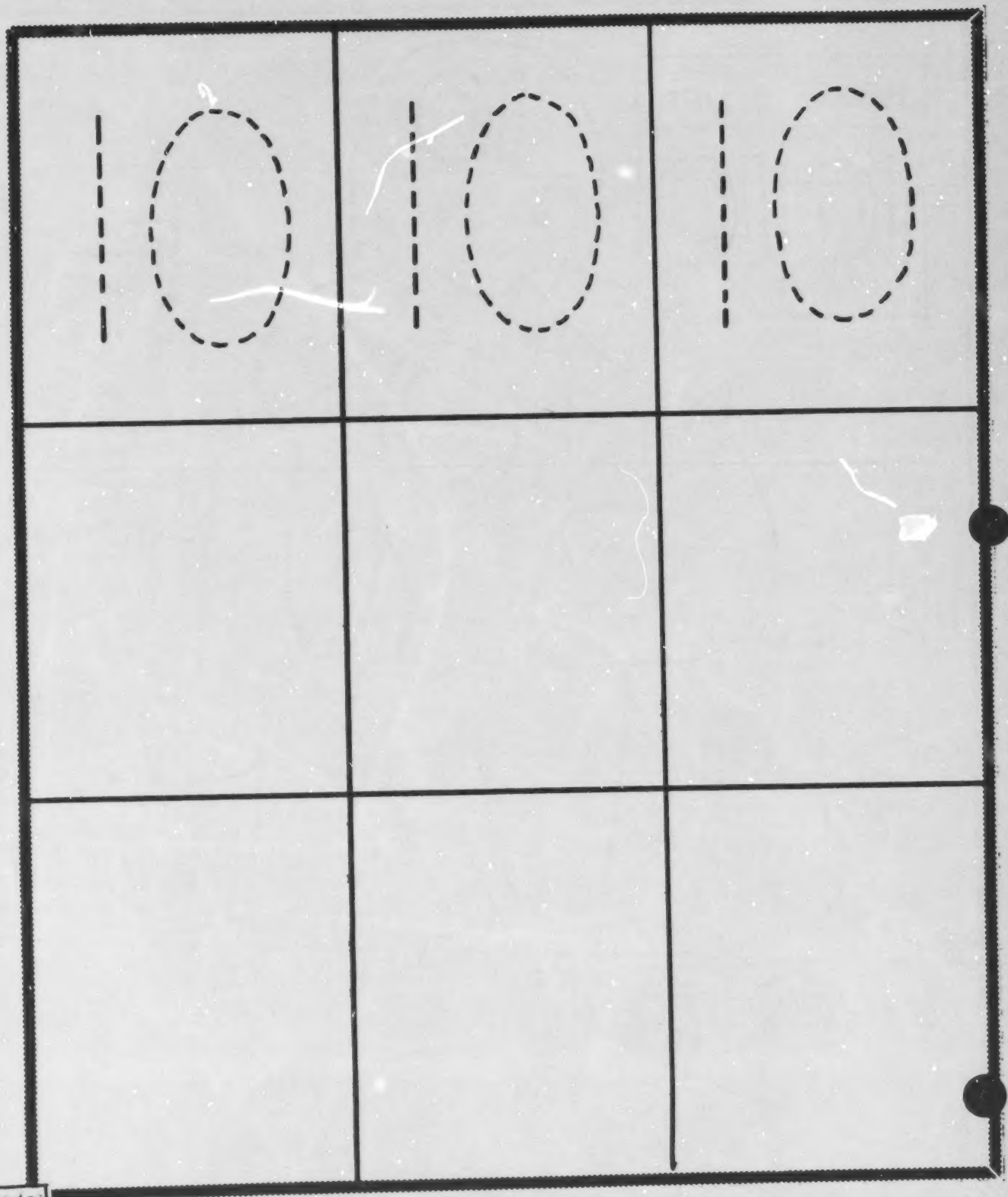
Find and color all the 10's.



P.O. 0.01.13.03

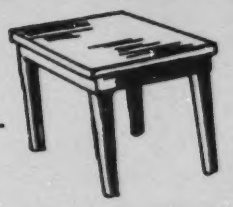
NAME:_____ CLASS:_____

Trace the numeral 10 and write the numeral 10 in the other boxes.

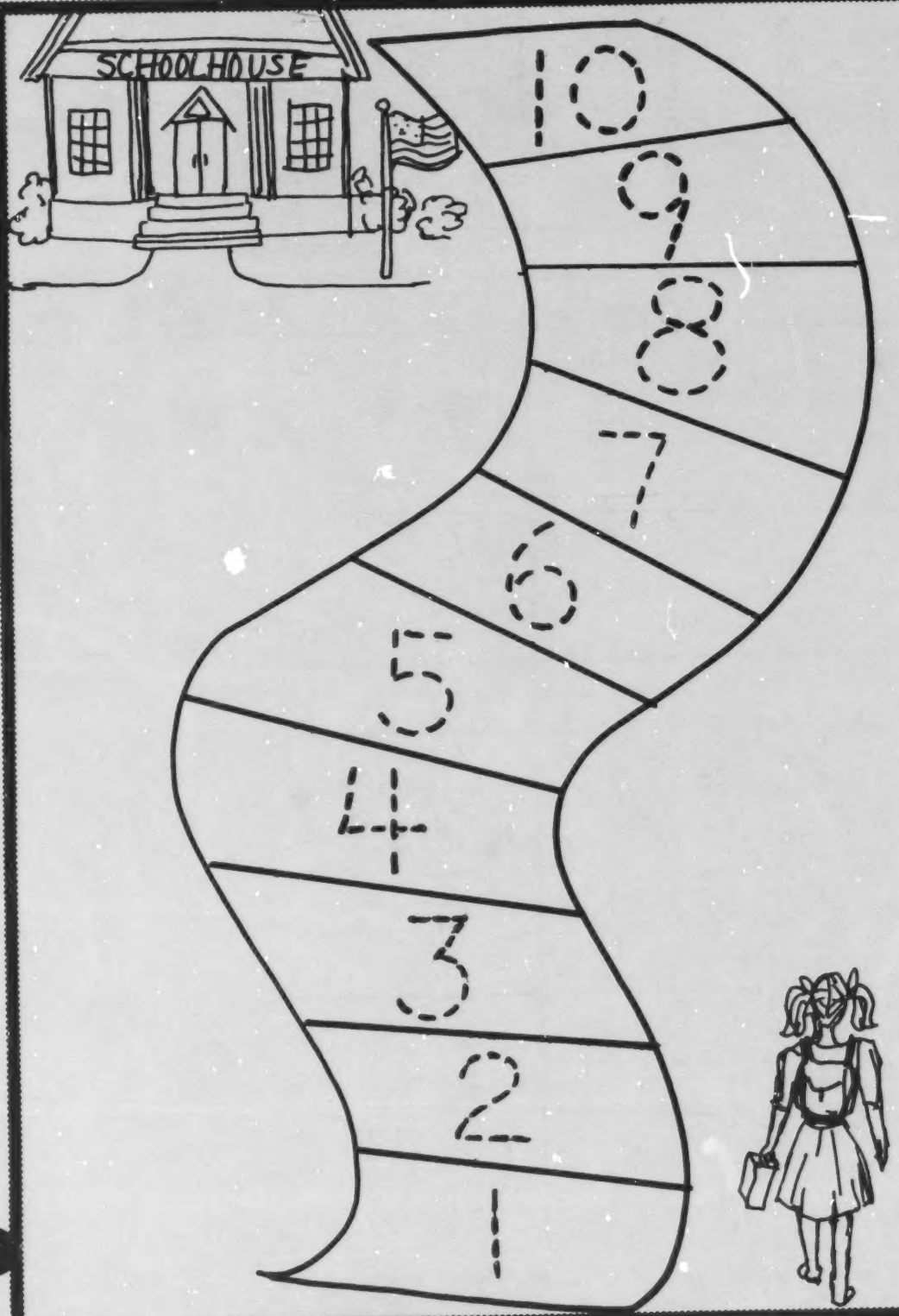


P.O. 0.01.13.04

NAME: _____ CLASS: _____



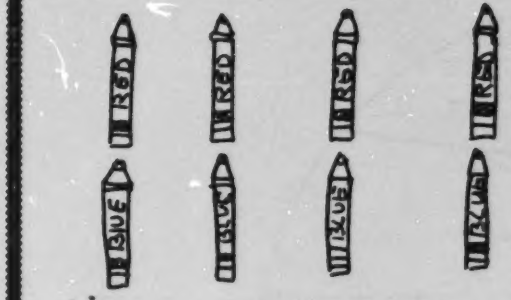
Write the numerals 1 to 10.
Say the numerals and help Jane get to school on time.



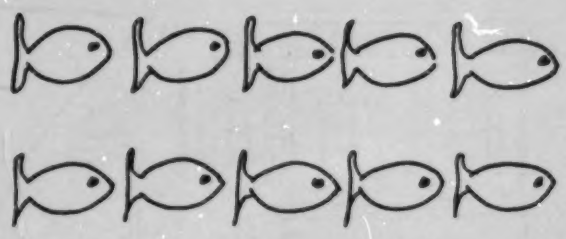
P.O. 0.01.13.05

NAME:_____ CLASS:_____

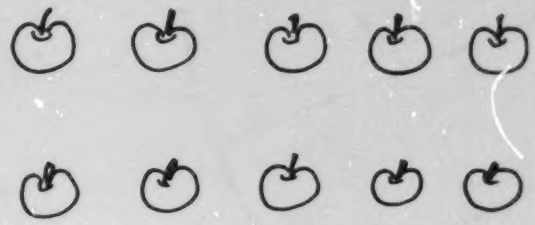
Circle the numeral which tells the number of objects in each group.



8 10 0 4

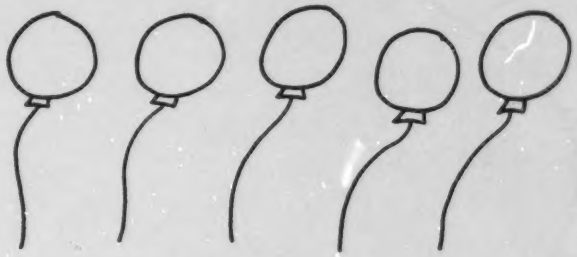


10 9 7 5

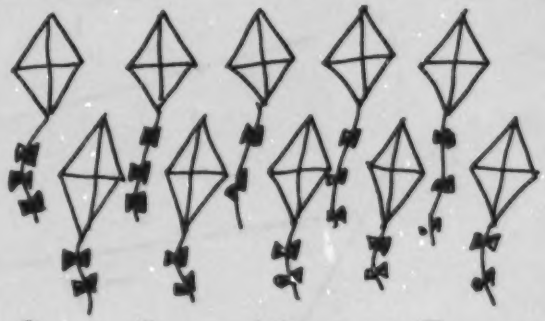


8 10 7 6

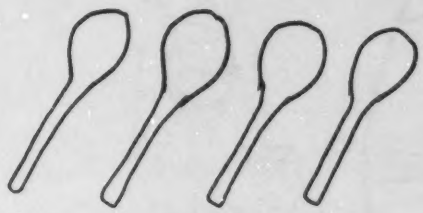
3 0 10 2



7 5 3 1



9 8 10 7



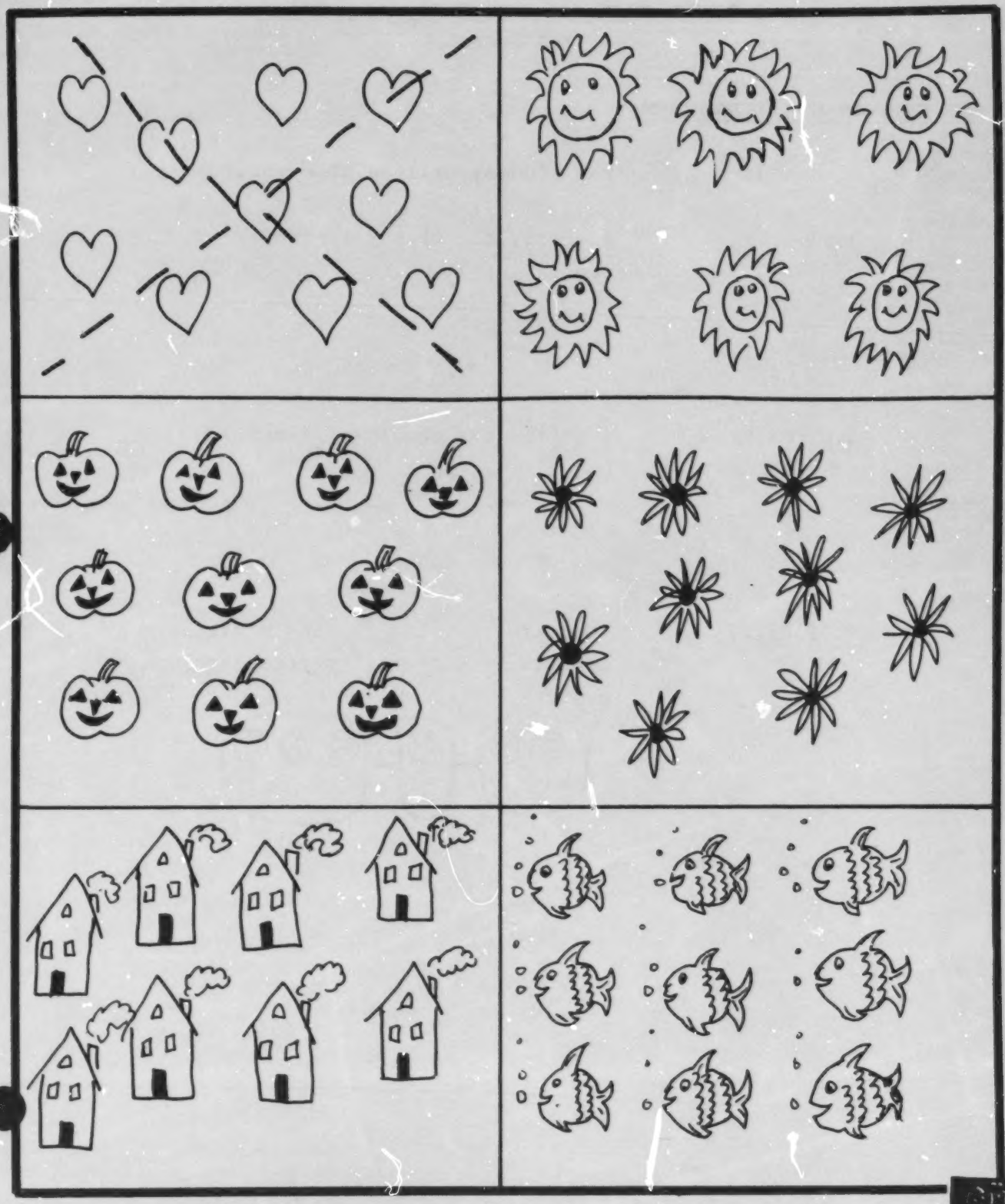
4 6 2 1

10 9 2 7

P.O. 0.01.13.05

NAME: _____ CLASS: _____

Draw an X in each box that has ten objects.



Unit 30

0.02.03 PLUS (+) AND EQUAL (=) SYMBOLS

(2-3 lessons)

PERFORMANCE OBJECTIVES

The student will be able to...

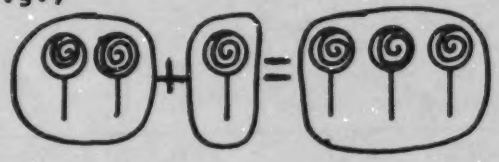
0.02.03.01 identify the plus (+) symbol;
e.g.,

+

0.02.03.02 identify the equal (=) symbol;
e.g.,

=

0.02.03.03 identify the plus (+) and equal (=) symbols in pictorial representations.
e.g.,



0.02.03

VOCABULARY

TERMS	SYMBOLS
equal	=
plus	+
add	
addition	
join	
how many in all	

GETTING STARTED

Ask a student to stand at the front of the room. Say, "How many pupils are in front of the room?" Ask a second student to join the first one. Say, "How many students joined the orginal group? How many students are there in front of the room in all?"

Create similar addition stories using students to dramatize adding 1 to 0 through 9.

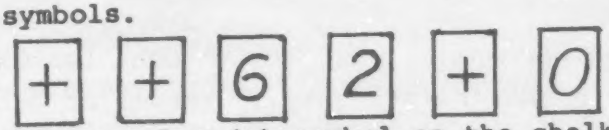
Ask two equal groups of students to come to the front of the room. Say, "Let's count the students in the first group. How many? Let's count the students in the second group. How many? What can you tell us about the number of students in each group?" (same number of students in each group)

0.02.03

0.02.03.01 identify the plus (+) symbol

STRATEGY 1: Prepare and distribute 2 pipe cleaners, popsicle sticks, or straws to each student. Write a plus symbol (+) on the chalkboard. Say, "This symbol is called the plus symbol. Let's make the plus symbol using the pipe cleaners." Demonstrate. Say, "What is this symbol called? It is called the plus symbol. It tells us to join or add groups together." Repeat this procedure using other materials to make plus symbols. Ask students to paste the symbols together. Display the symbols on a bulletin board so that they will be available for future units on addition.

STRATEGY 2: Prepare two sets of flashcards with familiar symbols. Several cards in each set should have plus symbols.

e.g., 

Draw a large plus (+) symbol on the chalkboard. Say, "This is the symbol we use when we join or add groups together. It is called the plus symbol." Distribute four or five flashcards to groups of students. Ask the students to find all the plus (+) symbols. Shuffle the cards and repeat the procedure.

0.02.03.02 identify the equal (=) symbol

STRATEGY 1: Prepare six flannel shapes, e.g., birds, a flannel equal (=) symbol, and a set of flannel-backed cards having either an equal (=) symbol or a numeral on them.

Place the birds on a flannel board making two groups of three. Point to one group and say, "How

STRATEGY 1: cont'd

many birds are in this group?" (3) Point to the other group of birds and say, "How many birds are in this group? (3) What can you tell us about the number of birds in each group? (They are the same.) When groups have the same amount, we say they are equal." Place the equal (=) symbol between the two groups on the flannelboard. Say, "This symbol is called the equal symbol. It shows us that the two groups have the same amount."

Assemble the symbol cards on the chalkboard ledge. Ask students to come to the flannelboard, make equal groups, and choose the equal symbol from among the symbol cards on the ledge. When the equal symbol is placed between the two groups, say, "How many are in each group? Which symbol did you place between them? Why?"

STRATEGY 2: Prepare six straws and cards with either an equal (=) symbol or a numeral on them for each pair of students. Distribute the straws to each pair of students. Ask one student in each pair to place three straws on his/her side of the desk. Ask the partner in each pair to place the same amount of straws on his/her side of the desk. Say, "How many straws did each partner place on the desk? (3) What can we say about the number of straws in each group? (They are the same.) When both groups have the same amount of objects, we say they are equal. Draw an equal symbol on the chalkboard. Say, "This is the equal symbol. It shows us that two groups are equal." Distribute the symbol and numeral cards to each pair of students. Ask the students to look at the cards and select the one with the equal symbol on it. Demonstrate how to place the equal symbol between the two groups of straws.

Ask student pairs to make other equal groups, and to select the correct symbol to place between the

STRATEGY 2: cont'd groups. With each new grouping say, "Which symbol did you place between your two groups? Why?"

0.02.03.03 identify the plus (+) and equal (=) symbols in pictorial representations

STRATEGY 1: Distribute ten discs and plus and equal symbol cards to each student. Ask one student to come to the front of the room. Say, "How many students are standing in front of the room?" Ask another student to come to the front room. Say, "How many more students came to the front of the room? (1) How many students in all?" (2) Display the following representation on the chalkboard.

e.g., ○ ○ ○○

Say, "Use your discs to show the same arrangement I have shown."

Display a plus and an equal sign and ask the students to identify them. Demonstrate a mathematical pictorial sentence on the chalkboard by inserting the plus and equal signs in the correct place.

e.g., ○ + ○ = ○○

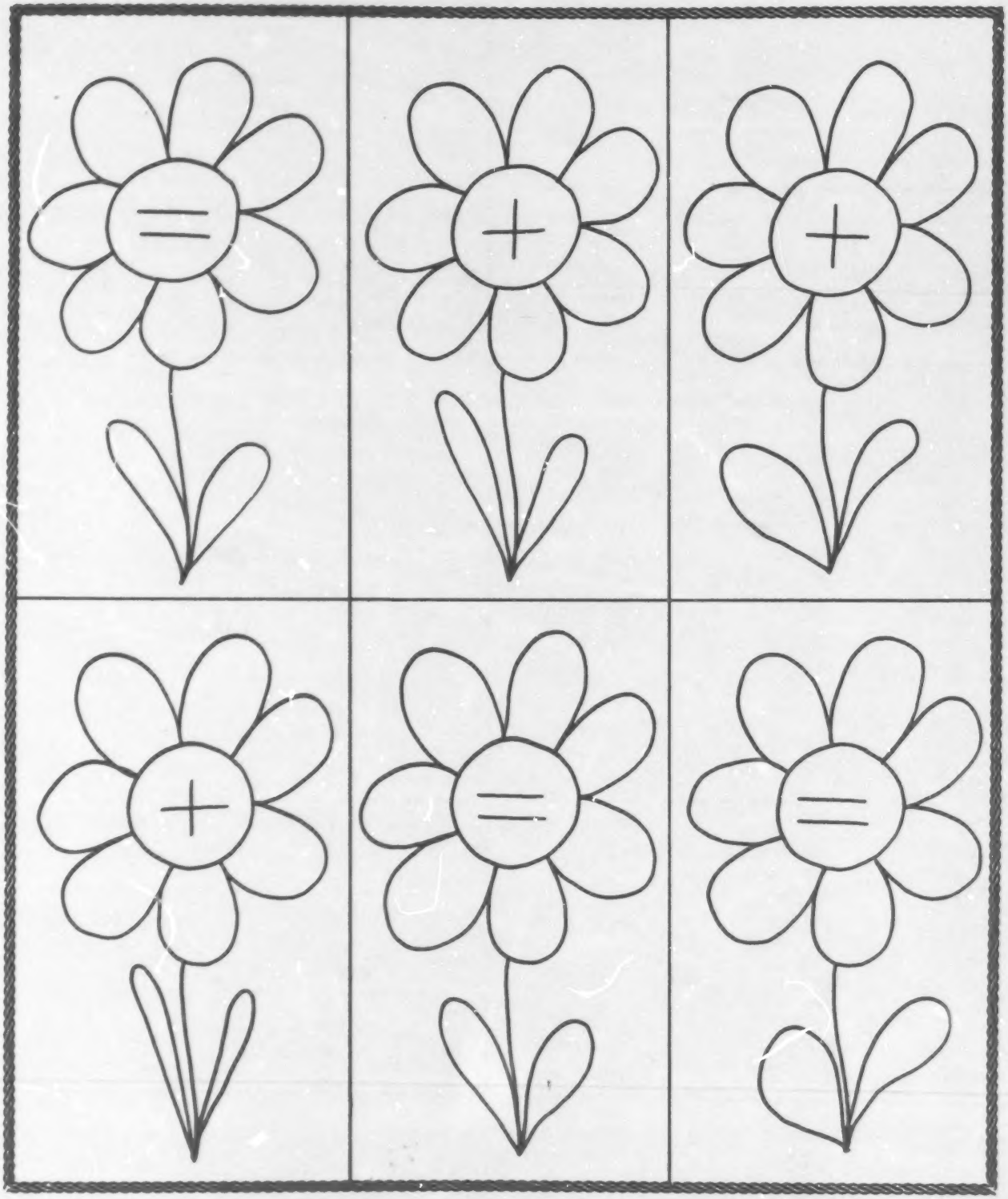
Continue this procedure with other number combinations.

STRATEGY 2: Prepare and distribute lotto cards. (Use student worksheet 34b.) Introduce the lotto game by asking the students to identify the plus and equal signs. Ask one student to stand by his/her seat. Say, "How many students are standing?" (one) Ask three more students to stand by their seats. Say, "How many more students stood up? (three) How many students are standing in all? (4) Arrange the pictures so that they will tell a story." Check to see that the plus and the equal symbols are in correct order. Allow students the opportunity to make up their own number stories.

P.O. 0.02.03.01 - .02

NAME: _____ CLASS: _____

Color each flower with a plus (+) symbol red and the flowers with an equal (=) symbol purple.



P.O. 0.02.03.03

NAME: _____ CLASS: _____

Cut along the dotted lines. Arrange the symbols, numerals and pictures to show how many objects there are altogether.

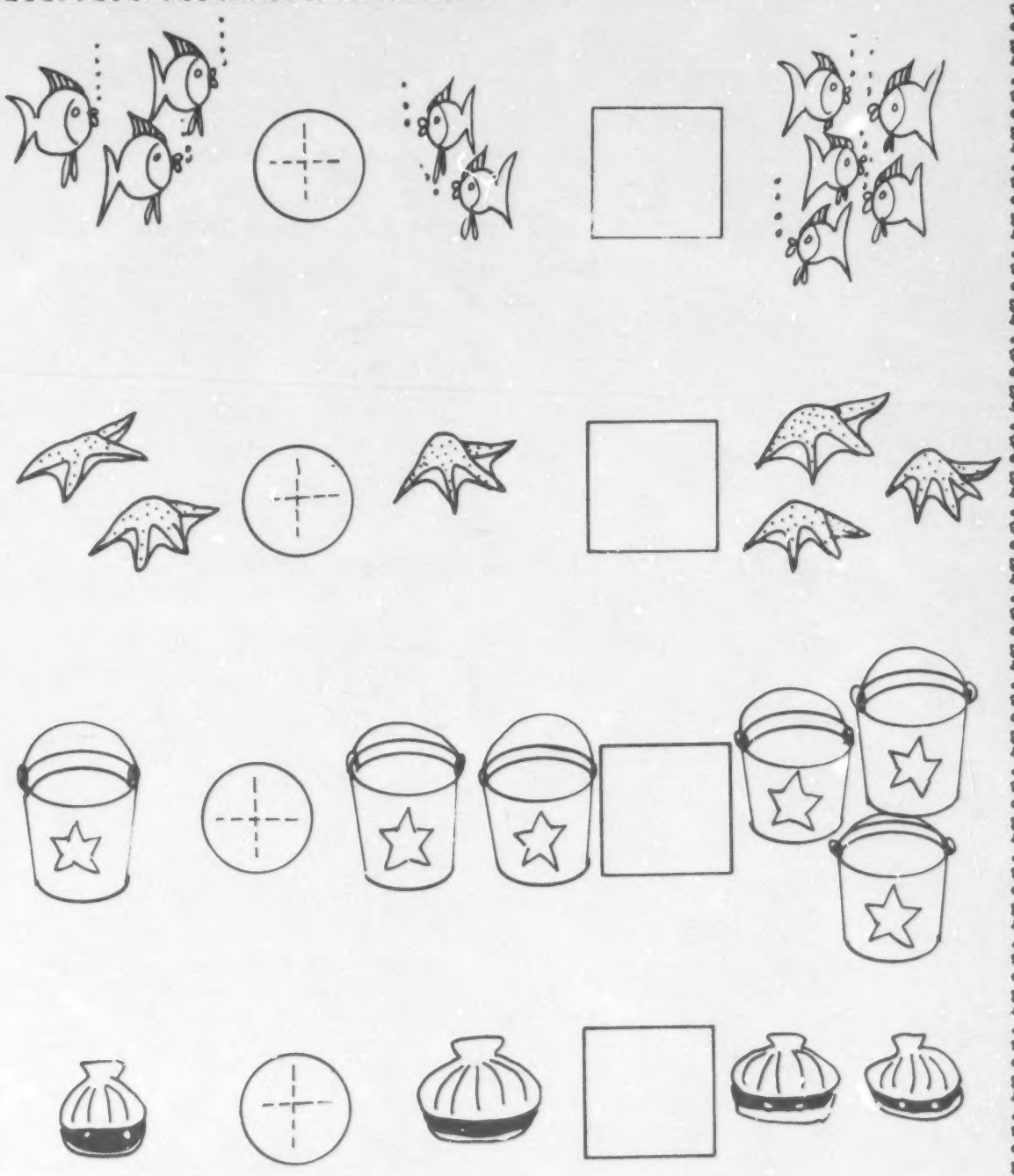
+ =

1 2 3 4

P.O. 0.02.03.03

NAME: _____ CLASS: _____

Write a plus symbol in each circle and an equal symbol in each box to complete the number sentences.



0.02.04 ADD TWO

(3 lessons)

PERFORMANCE OBJECTIVES

The student will be able to...

0.02.04.01 add 2 objects to 1 through 3 objects;
e.g.,

0.02.04.02 add 2 objects to 0 objects.
e.g.,

0.02.04

VOCABULARY

TERMS	SYMBOLS
add	
plus	+
equal	=

GETTING STARTED

Sing a number song to the tune of 99 Bottles of Beer on the Wall.

Say, "We will sing a song about adding glasses of milk."

One glass of milk on the wall
One glass of milk. This for
me and this for you. Now two
glasses of milk on the wall.

Two glasses of milk on the wall
Two glasses of milk. Add one
more for Mary Lou. Now three
glasses of milk on the wall.

Three glasses of milk on the wall
Three glasses of milk. Here comes
Johnny - we add one more. Four
glasses of milk on the wall.

Continue in this same manner through ten glasses of milk.

Sing a number song to the tune of There were Five in the Bed.

There was one in the pool and one more said, move over, move over. So one moved over and one more jumped in.
There were two in the pool and one more said, move over, move over. So two moved over and one more jumped in.
There were three in the pool and one more said, move over, move over. So three moved over and one more jumped in.
There were...

Continue the song through ten.

0.02.04

0.02.04.01 add 2 objects to 1 through 3 objects

STRATEGY 1: Distribute a small block to each student. Say, "How many blocks do you have?" Distribute 2 more blocks. Say, "How many blocks did we add? How many blocks are there altogether?"

Repeat this procedure beginning with two or three blocks.

STRATEGY 2: Distribute five discs and a small container to each student. Say, "Place one disc in your container. How many discs did you put in your container? Place two more discs in your container. How many discs did you add? How many discs are in your container now?"

Repeat this procedure beginning with two and three discs.

0.02.04.02 add 2 objects to 0 objects

STRATEGY 1: Prepare planting materials - pots, soil and seeds for each student. Say, "Today we will plant seeds. Put some soil into your pot. Put two seeds in the pot and lightly cover them with soil. (Demonstrate.) How many seeds were in the pot when we began? (0) How many seeds did we add? (2) How many do we have in all? We can say 0 + 2 = 2. Zero stands for no seeds." Ask other students to fill pots and plant two seeds each. Ask the students to tell what they are doing when it is their turn.

0.02.04

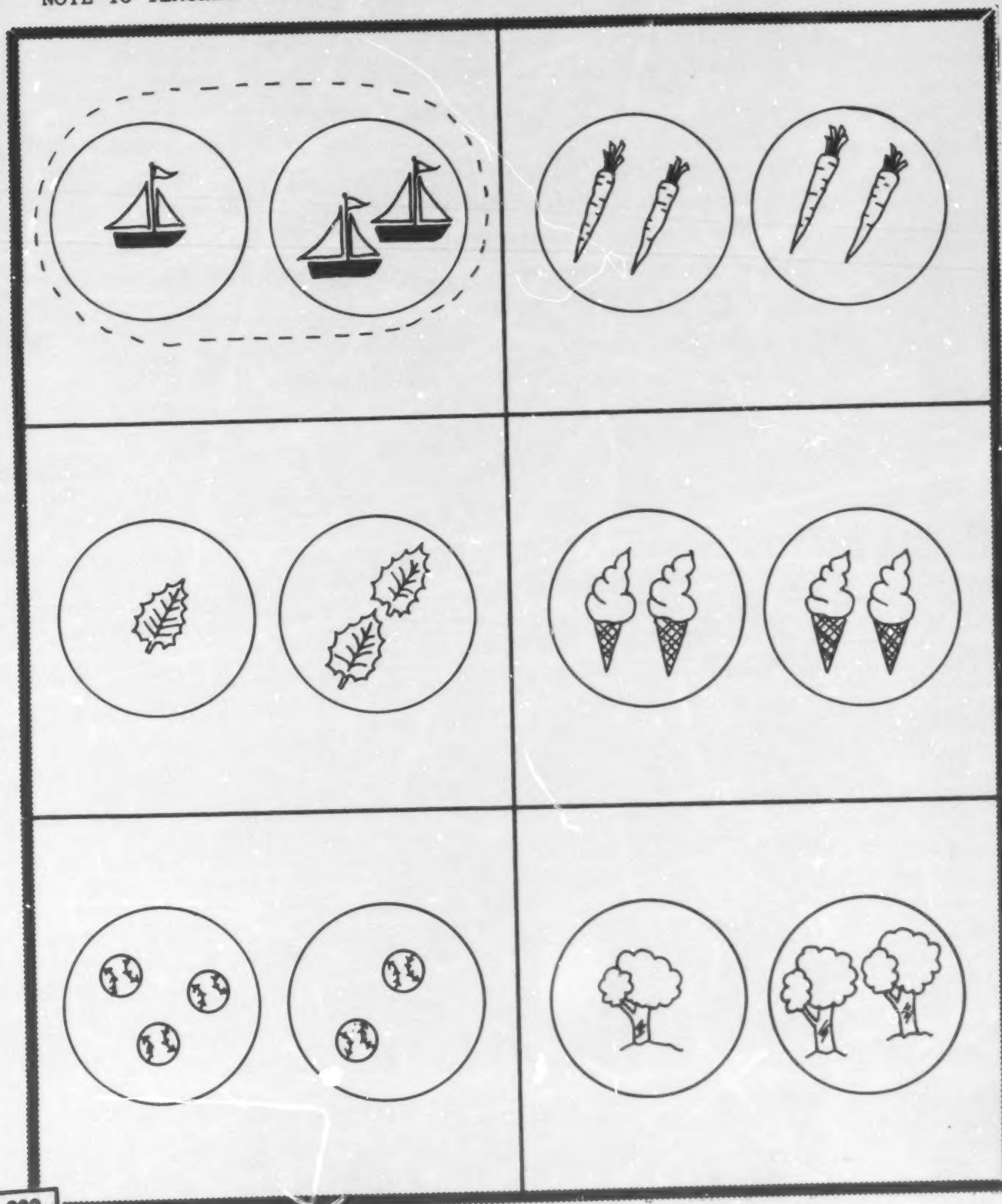
STRATEGY 2: Prepare and display two of each of the following: milk containers, apples, juice containers and cookie boxes. Say, "Let's pretend we're going to the supermarket to buy some groceries. We don't have any milk, apples, juice or cookies in the house." Ask a student to pretend he/she is going to the grocery store to buy milk. Say, "How many containers of milk did we have in the house? (0) How many milk containers did we buy? (2 containers) How many milk containers do we have now?" (2 containers)

Continue shopping for other items. Ask the students to tell the related number story for the items purchased.

P.O. 0.02.04.01

NAME: _____ CLASS: _____

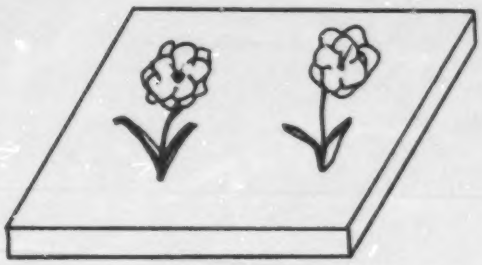
Tell each number story.
NOTE TO TEACHER: Make sure students begin with the addend on the left.

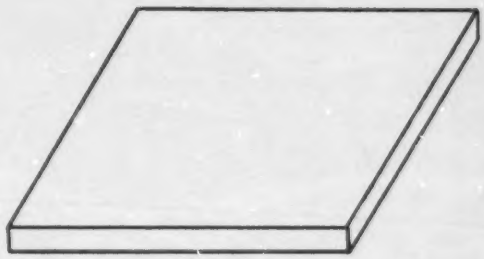


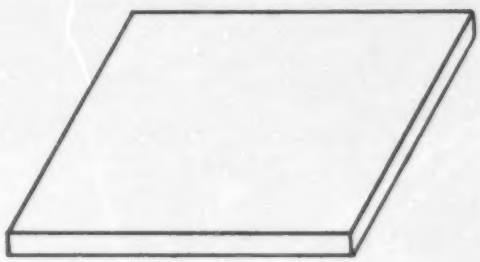
P.O. 0.02.04.02

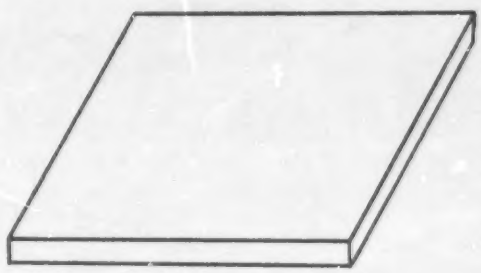
NAME:_____ CLASS:_____

Draw two plants in each garden. Tell the number stories.





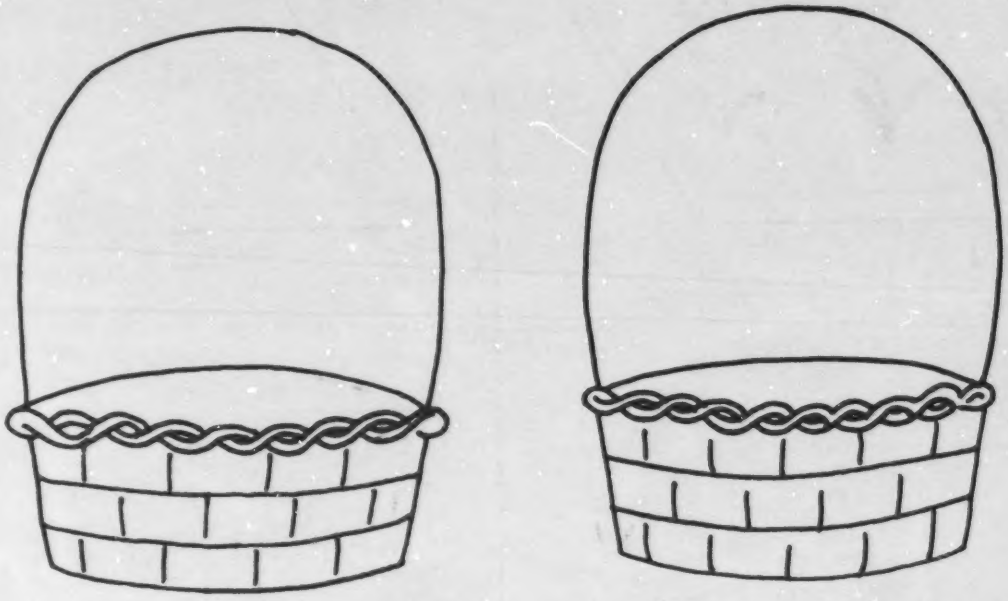


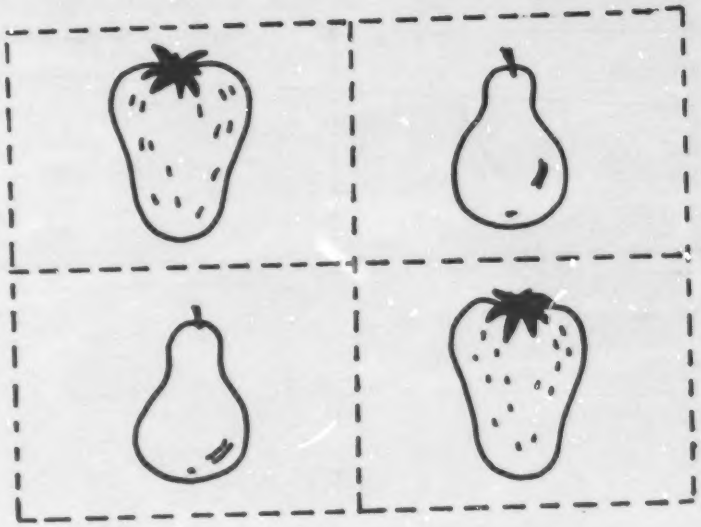


P.O.0.02.04.02

NAME:_____ CLASS:_____

Cut out the fruit. Paste two pieces of fruit in each basket.
Color the fruit. Tell the number story.





334

0.02.05 ADD THREE

(3 lessons)

PERFORMANCE OBJECTIVES

The student will be able to...

0.02.05.01 add 3 objects to 1 through 4 objects; e.g.,

0.02.05.02 add 3 objects to 0 objects.
e.g.,

0.02.05

VOCABULARY

TERMS	SYM
three	3
objects	
joined	
add(ing)	
addition	

GETTING STARTED

Teach the finger play, "My Hat, It Has Three Corners".

My hat it has three corners,
Three corners has my hat.
Had it not three corners,
It would not be my hat.

Use index finger and thumb of one hand joined to index finger of other hand to form the three-cornered hat of the fingerplay. Teach students how to form the three corners of the hat while performing the fingerplay.

Prepare and distribute magazines, construction paper, scissors, crayons and glue to students. Write the numeral 3 on the chalkboard. Ask a student to read the numeral. Say, "Write a large numeral 3 at the top of your paper." Demonstrate. Say, "Look through your magazine and cut out three people (animals, fruit, cars). Paste them onto your paper under the numeral 3." Create a bulletin board display with these constructions.

0.02.05

0.02.05.01 **add 3 objects to 1 through 4 objects**

STRATEGY 1: Say, "Listen while I tap out some sounds." Using a pen, tap once and then three times in rapid succession. Say, "How many taps did you hear in all?" Demonstrate the taps again. Say, "Let's do it together. How many times shall we tap to start? (1) How many times shall we tap next? (3) How many times did you tap in all?"

Repeat this procedure using taps or claps for 2 + 3 = 5, 3 + 3 = 6 and 4 + 3 = 7.

STRATEGY 2: Prepare and distribute seven stars to each student. Say, "One night Twinkle, the brightest star in the sky, came out to look around the heavens. 'It sure gets lonely all by myself,' Twinkle said. 'I wish I had some company.' Just then, Twinkle heard, 'Hello, hello, hello.' He looked around to see three other bright stars a short distance away. 'We heard your wish,' they said, 'and we broke away from the Milky Way to join you. Now you will not be lonely any more.'" Ask the students to retell this story while showing the appropriate number of stars. Repeat this procedure using number stories for 2 + 3, 3 + 3 and 4 + 3.

0.02.05

0.02.05.02 **add 3 objects to 0 objects**

STRATEGY 1: Display two paper cups. Put three counters in one cup and leave the other cup empty. Ask a student to count the counters in the first cup. Point to the empty cup. Say, "How many counters are in this cup?" Ask a student to empty the first cup into the empty cup. Say, "How many counters do we have in all? When we add three to zero, we still have three."

Repeat this procedure changing the type of counter and the container used each time.

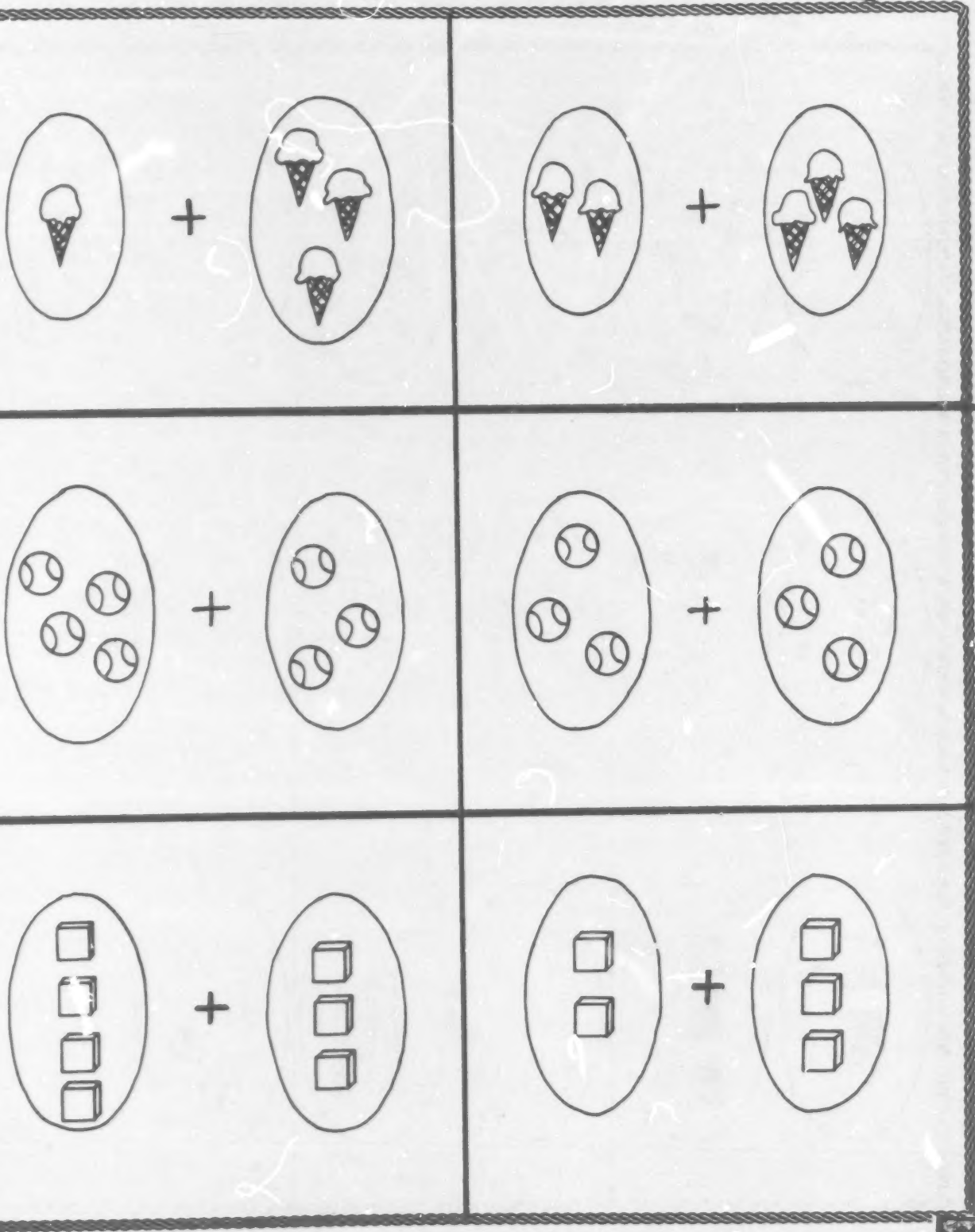
STRATEGY 2: Distribute pegboards and an envelope with three pegs of each available color to each student. Say, "How many yellow pegs are on your pegboard? (0) Place three yellow pegs in the first row. How many yellow pegs are in your pegboard now? (3) Who can tell us what we have just done?" (We started with zero and we added three. Now we have three.)

Repeat this procedure using other color pegs.

P.O. 0.02.05.01

NAME: _____ CLASS: _____

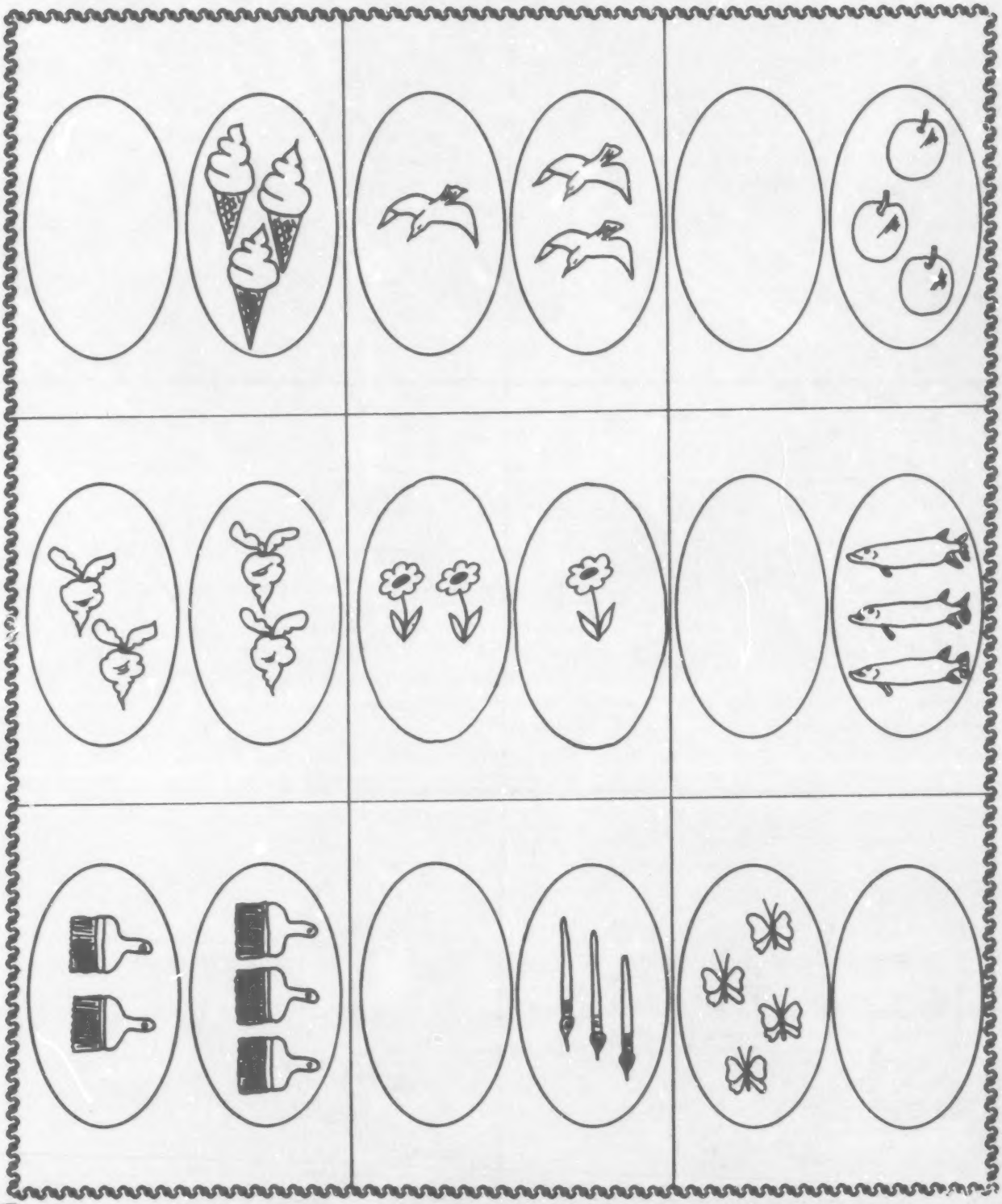
Tell a story about each picture.



P.O. 0.02.05.02

NAME: _____ CLASS: _____

Draw an X in each box that shows that three has been added to zero.



0.10.10 TIME RELATIONSHIPS

(3-4 lessons)

PERFORMANCE OBJECTIVES

The student will be able to...

0.10.10.01 distinguish between it takes longer and less time than;
e.g.,
It takes longer to walk.
Riding the bus will take less time than walking.

0.10.10.02 recognize as long as;
e.g.,
Riding the bus will take as long as riding in a car.

0.10.10.03 distinguish between older and younger;
e.g.,
My cousin is older/younger than I.

0.10.10.04 solve oral story problems related to skills learned in this module.
e.g.,
It takes Johnny less time to dress than his sister Mary. Who takes longer to dress?

0.10.10

VOCABULARY

TERMS

longer
as long as
less
older
younger

GETTING STARTED

Prepare a picture of a train. Say, "What does a train ride on? (tracks) Many years ago, miles and miles of train tracks were laid down all across our country. The men who built these tracks worked very hard. To make their jobs seem easier, they would sing as they worked."

Teach the song, I've Been Working on the Railroad. When the students have learned the song, say, "How long has the worker in the song been working on the railroad? What does 'Rise up so early in the morn' mean? If you were a railroad worker, would your job have taken a long or short time to complete?"

Prepare a clock. Say, "This is a clock. What kind of clock can you wear? (a watch) Let's find all the clocks and watches in this room and count them to see how many there are. One reason we can use a clock or watch is to tell us how long it takes to walk from home to school. What other things can a clock or watch help us know?" Elicit responses from all students.

0.10.10

0.10.10.01 distinguish between it takes longer and less time than

STRATEGY 1: Prepare two chairs and a pile of kindergarten blocks. Clear a large area, designate a Start Line, and set up the chairs at one end of the room for a race. Place the pile of blocks opposite the chairs at the other end of the room. Say, "We are going to have a race. When I say go, pick up a block at the starting line. Put the block on the chair and return to the starting line. The first pupil to return to Start is the winner." Demonstrate. Ask two pupils to be the first racers. Say, "Who returned to the start first? It took Ronnie less time to run the race. It took Sandy a longer time to run." Repeat this procedure with several pairs of pupils.

STRATEGY 2: Prepare a penny and a feather, a penny and a wad of paper, a feather and a wad of paper, a sponge and a penny, a sponge and a feather, an open paper and a wad of paper, a washer and a penny. Ask a student to drop the penny and the feather from the same height. Say, "Which object reached the floor first? (the penny) It took less time for the penny to fall than the feather. The feather took longer to fall."

Repeat this procedure with other pairs of objects.

0.10.10.02 recognize as long as

STRATEGY 1: Drop two pennies from the same height. Say, "Which penny fell first? (The two pennies fell at the same time.) One penny took as long as the other to fall."

0.10.10

STRATEGY 2: Ask two students at a time to skip, jump, hop or tiptoe across the room. Say, "Did they take the same amount of time? Who took longer? Who took less time?" Continue this activity until several pairs of students are evenly matched. Say, "Did Donald and Frank take the same amount of time to finish? Frank took as long as Donald to finish. Donald took as long as Frank to finish."

0.10.10.03 distinguish between older and younger

STRATEGY 1: Prepare pictures of different families. Include extended families. Say, "Who are the members of the family? Who is the oldest member? Who is the youngest. Who is older?" Discuss all possible combinations. Repeat this procedure, asking similar questions about students' families.

STRATEGY 2: Use worksheet 37d. Say, "Find the box with the sun. Draw a picture of yourself. Find the box with the moon and draw someone who is older than you. Who could you draw? (mother, father, uncle, grandparents, older brothers/sisters) Look at the man. Find the box with the flower and draw someone who is younger than the man. Whom could you draw?" Ask students to tell about their pictures, e.g., my father is older than I. My sister is younger than the man.

0.10.10

0.10.10.04 **solve oral story problems related to skills learned in this module**

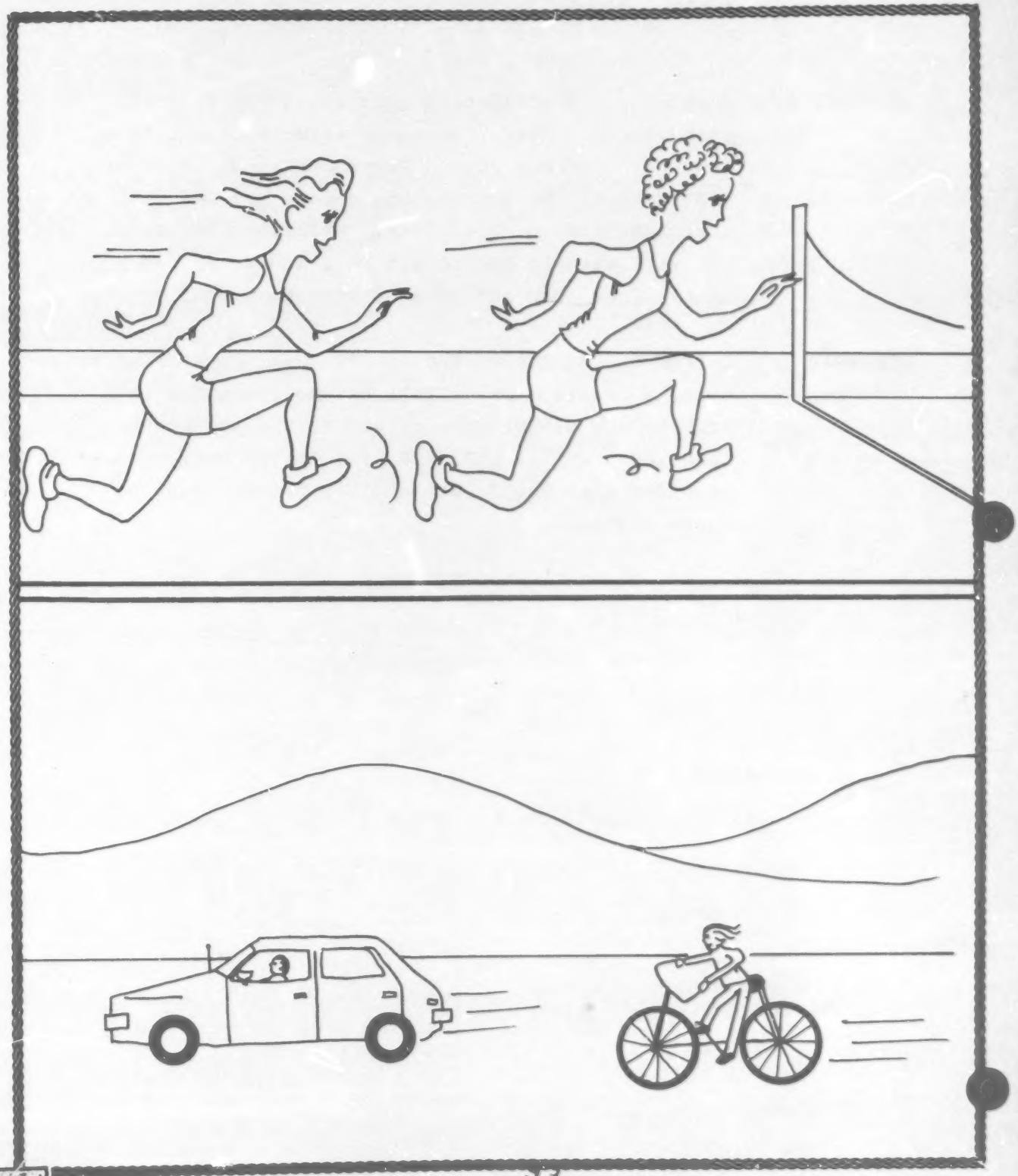
STRATEGY 1: Prepare and distribute a girl and a boy cut-out to each student. Say, "Nora can walk to school faster than her brother, John. Pretend that one side of your desk is the school. Hold your boy and girl at the other side of your desk. Walk them to school. Who will take longer to get to school? How do you know? Show John and Nora walking to school."

STRATEGY 2: Introduce the "Guess Who Game". Ask one student to solve a riddle. Say, "Tell us who you think this is. He/she sleeps in a crib. He/she is younger than you. Who is it? (A Baby.) Is the baby younger or older than you?" Repeat this procedure using other examples.

P.O. 0.10.10.01

NAME: _____ CLASS: _____

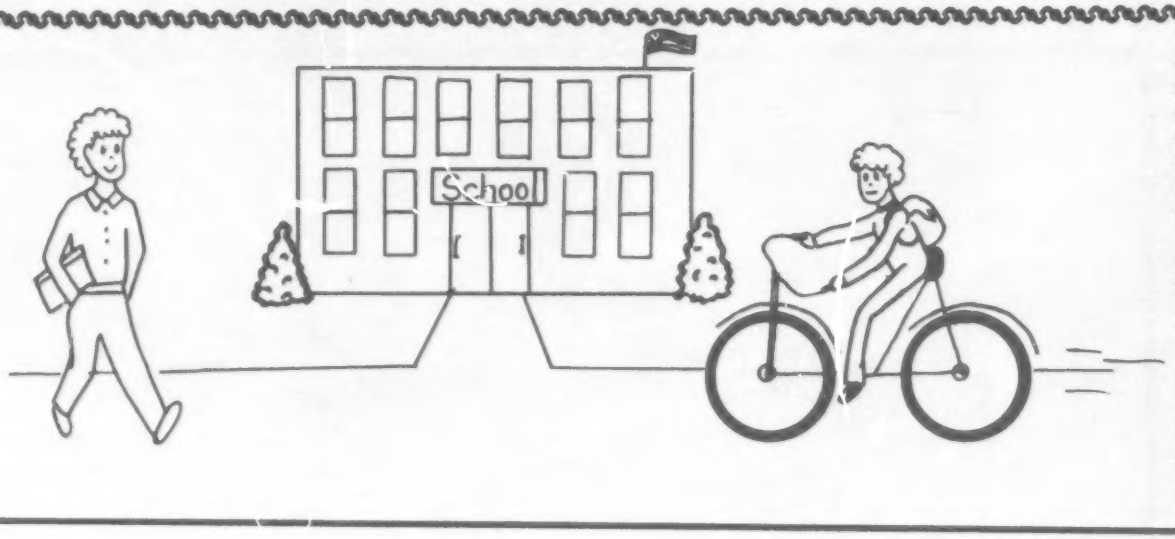
Color the runner who took less time to finish the race.
Place an X on the one who took more time to get home.

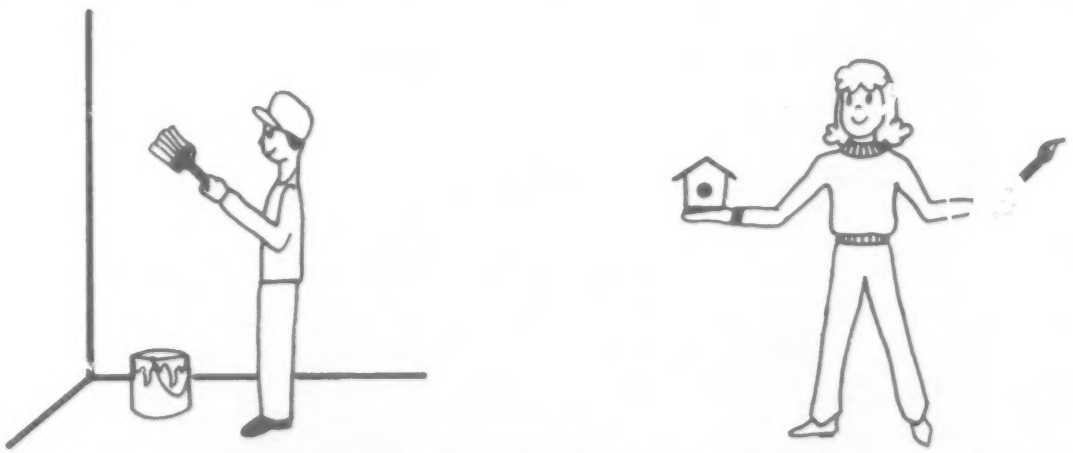


P.O. 0.10.10.01

NAME: _____ CLASS: _____

Look at the two activities in each box.
Draw a circle around the activity which takes less time to complete.

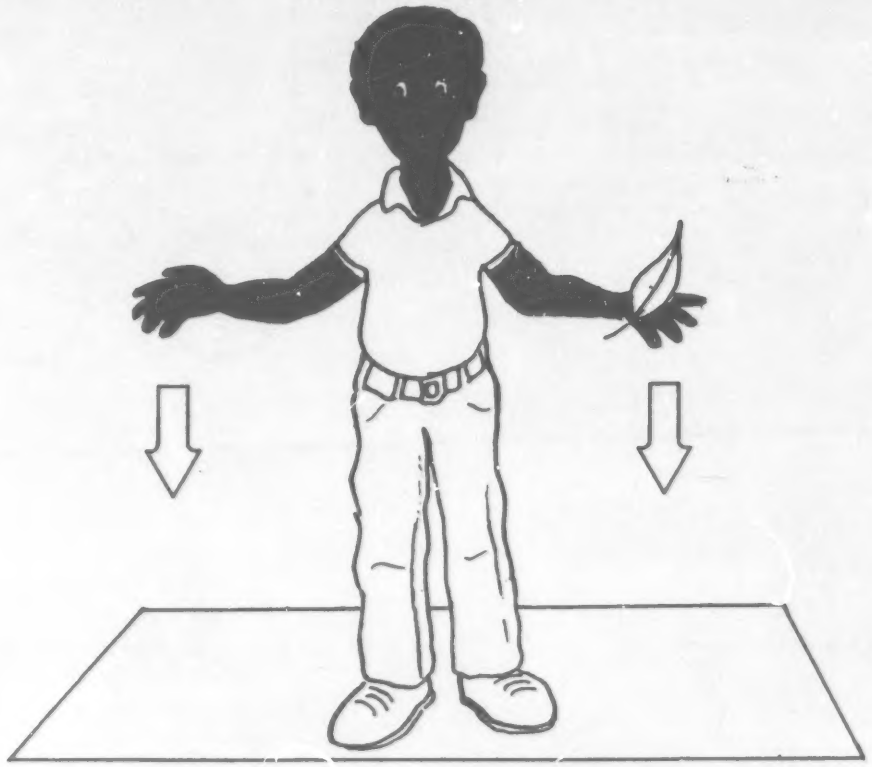




P.O. 0.10.10.02

NAME: _____ CLASS: _____

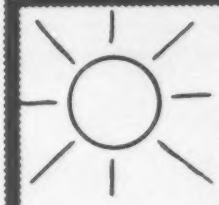
Hold a penny in one hand. Hold one of the other objects pictured below in the other hand. Drop them from the same height. Put an X on the object(s) which took longer than the penny to fall to the floor.

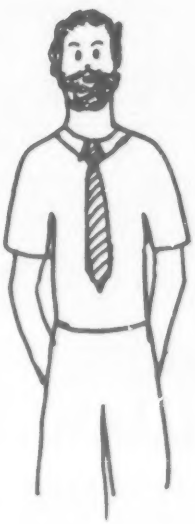


P.O. 0.10.10.03

NAME: _____ CLASS: _____

Find the box with the sun. Draw a picture of yourself there. In the box with the moon, draw someone <u>older</u> than you. Find the box with the man. Draw someone <u>younger</u> than him in the box with the flower.

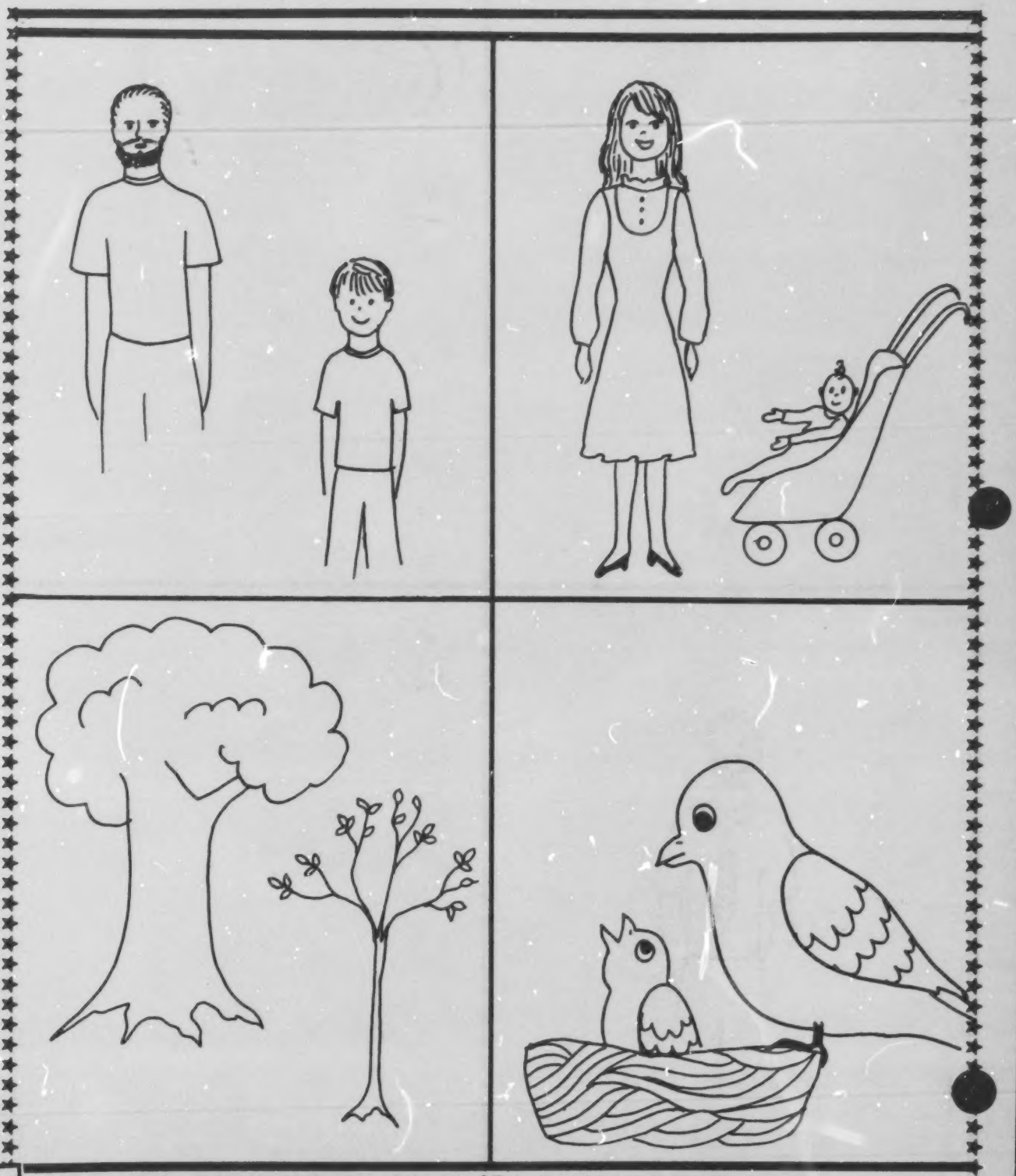




P.O. 0.10.10.03

NAME:_____ CLASS:_____

Circle the picture that shows the older one.



P.O. 0.10.10.04

NAME: _____ CLASS: _____

Minnie will shop in both stores.
Color the store which will take longer to reach.

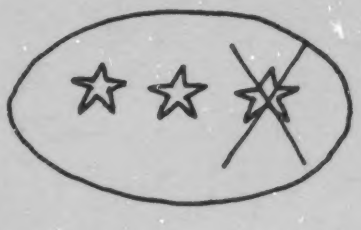
0.03.01 SUBTRACTION

(3-5 lessons)

PERFORMANCE OBJECTIVES

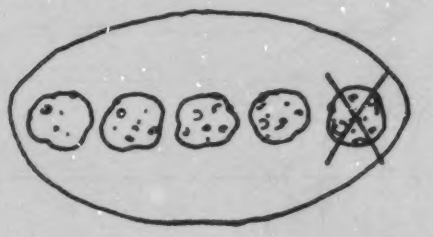
The student will be able to...

0.03.01.01 recognize that when an object(s) is subtracted from a group, the resulting group is smaller than the original; e.g.,



0.03.01.02 solve oral story problems related to subtraction skills using concrete materials.
e.g.,

Michael had five cookies in his lunch box. He gave Pam one of his cookies. How many did he have left?



0.03.01

VOCABULARY

TERMS	TERMS
subtract	fewer
minus	go away
are left	remain

GETTING STARTED

Ask the students to dramatize the poem "Ten Huge Dinosaurs"* to show how groups become smaller.

Ten huge dinosaurs were standing in a line,
One tripped on a cobblestone and then there were ____.
Nine huge dinosaurs were trying hard to skate,
One cracked right through the ice, and then there were ____.
Eight huge dinosaurs were counting past eleven,
One counted up too far, and then there were ____.
Seven huge dinosaurs learned some magic tricks,
One did a disappearing act, and then there were ____.
Six huge dinosaurs were learning how to drive,
One forgot to put in gas, and so then there were ____.
Five huge dinosaurs joined the drum corps,
One forgot the drumsticks, and then there were ____.
Four huge dinosaurs were wading in the sea,
One waded too far out, and then there were ____.
Three huge dinosaurs looked for Mister Soo,
One gave up the search, and then there were ____.
Two huge dinosaurs went up the Amazon,
One sailed in up to his head, and then there was ____.
One lonesome dinosaur knew his friends had gone,
He found a big museum, and then there was ____.

*Rhymes for Learning Times,
T.S. Denison and Company, Inc.
Minneapolis, Minn. 1983

Recite the fingerplay, "Ten Little Indians" backward, e.g., Ten little, nine little, eight little Indians...

0.03.01

0.03.01.01 **recognize that when an object(s) is subtracted from a group, the resulting group is smaller than the original**

STRATEGY 1: Prepare large cardboard figures of a car, a boat, a train and a plane. Hold up the car and say, "We will be taking an imaginary trip." Ask five students to stand behind the car and move around the room as if they were taking a car ride. Instruct three students to get out of the car. Say, "Who can tell us a number story about what happened? (There were five students in the car. Three students got out of the car. Now there are only two students left.) Were there more students in the car at the beginning of the trip or at the end of the trip? When we take away things from a group, we have fewer things than when we started. This is called subtraction."

Repeat this procedure by asking the students to make up their own travel subtraction stories, using the other means of travel pictured.

STRATEGY 2: Distribute ten discs, buttons or blocks to each student. Say, "Place a group of five discs in the center of your desk. Now take away two discs. How many discs are left on your desk? When we take away things from a group, we have fewer or less than with what we began. What you have just done is called subtraction."

Repeat this procedure using other examples.

0.03.01

0.03.01.02 **solve oral story problems related to skills learned in this module**

STRATEGY 1: Prepare a milk carton house for each student by cutting off the top of an empty, half-pint milk carton and taping or gluing a construction paper cover. Draw windows and doors on the cover. Distribute 10 ice cream sticks, ten oaktag circles, glue and crayons to each student. Say, "You will make stick people. Draw a face on each circle. Match each circle with a stick and glue them together."
e.g.,

Say, "What are some reasons people leave their houses? (To go to work, school, shopping.) There are five people in the house. Place five stick people in your carton. Two people are going to work. Take out two stick people. How many people are left in the house? When we take something away, we are doing subtraction."

Repeat this procedure by creating other story problems. Give students the opportunity to make up their own story problems.

STRATEGY 2: Prepare ten flannel birds and a flannel board. Ask a student to place five birds on the flannel board. Say, "I will say a poem. When I tell you how many birds fly away, you will take away that number of birds. Five little birds are sitting on a tree. Two flew away. Now there are ____." Ask the student to remove two birds and count the number of birds that are left. Say, "Now there are three. When we take something away, we are doing subtraction."

Repeat this procedure, reciting the verses below, selecting a different student to act and speak for each verse.

STRATEGY 2:
cont'd

Three fat birds are hiding in a shoe.
One flew away. Now there are ____. (2)

Seven black birds are standing on the floor.
Three flew away. Now there are ____. (4)

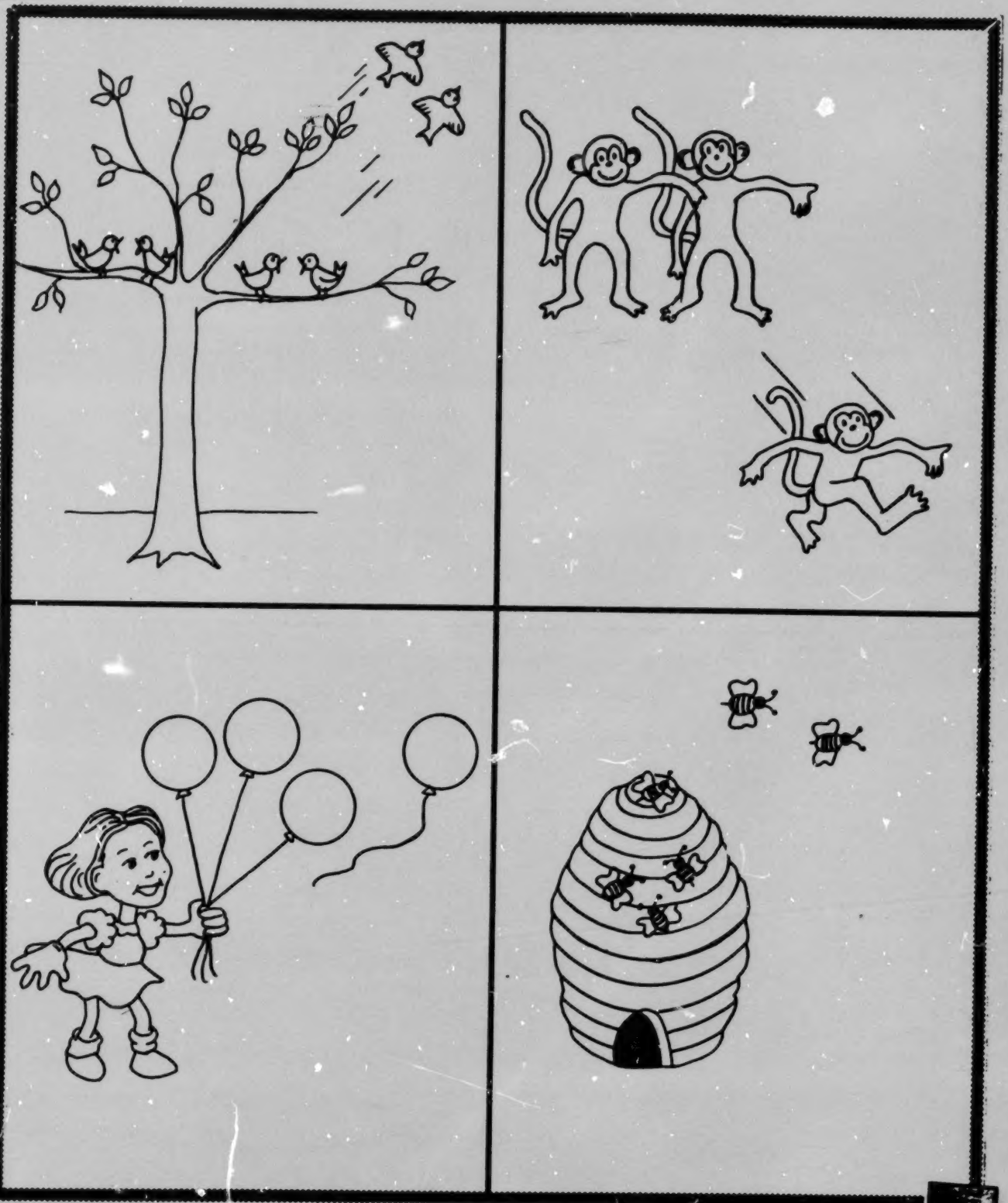
Nine blue birds are playing in the sun.
Eight flew away. Now there is ____. (1)

Say, "What happens when we take things away from a group?" Elicit from the students that we have fewer or less than we had.

P.O. 0.03.01.01

NAME: _____ CLASS: _____

Tell a number story about each picture.

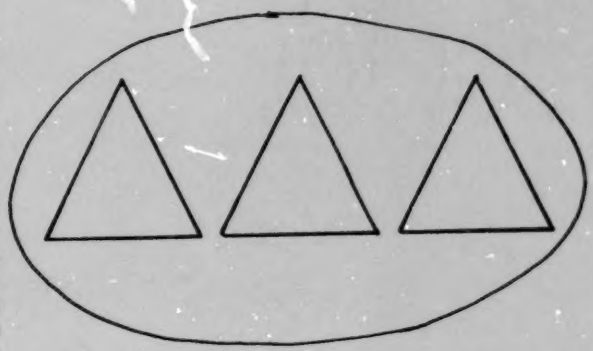


P.O. 0.03.01.01

NAME: _____ CLASS: _____

Count the shapes.
Ask the students to make an X on a specific number of those shapes.
How many shapes are left? Color the shapes left.

1



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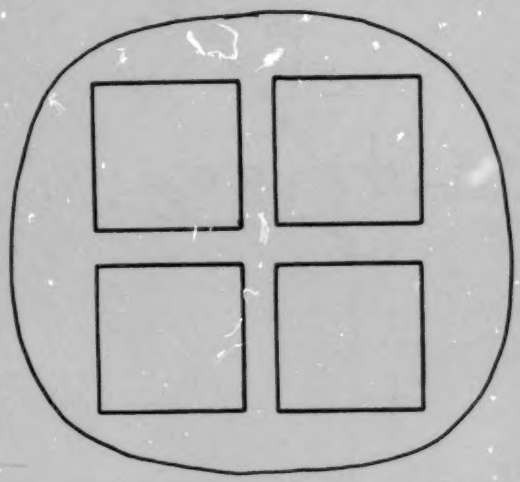

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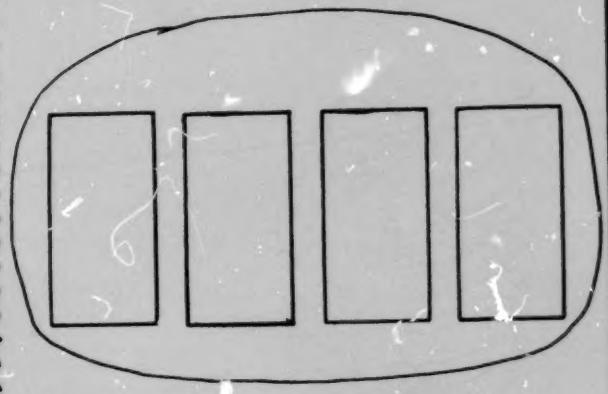

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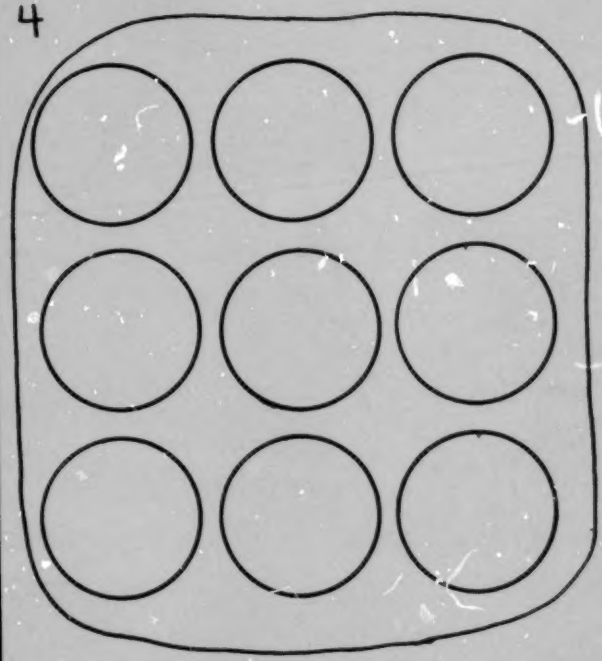
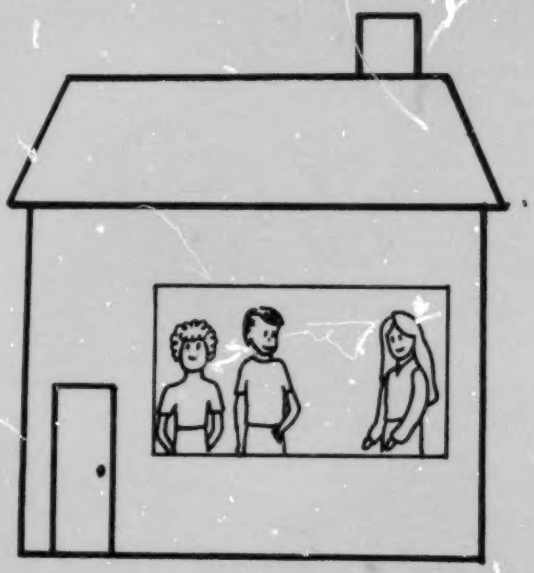


P.O. 0.03.01.02

NAME: _____ CLASS: _____

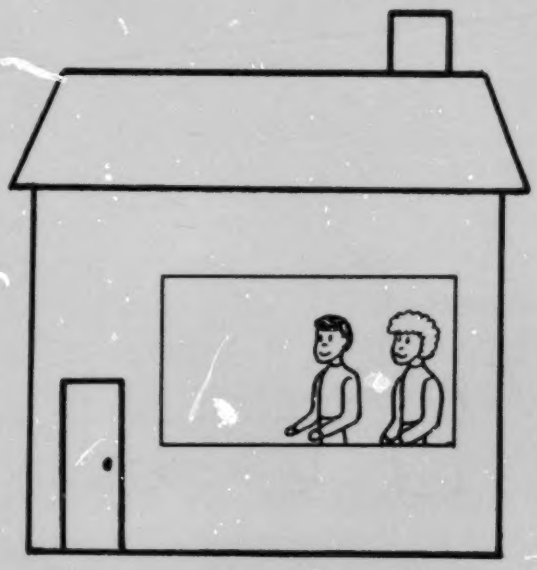
How many people are in the house in box 1? Two people went to the park. Make an X on two people. How many people stayed in the house? Color them. Create similar stories for the other boxes.

1



2

3



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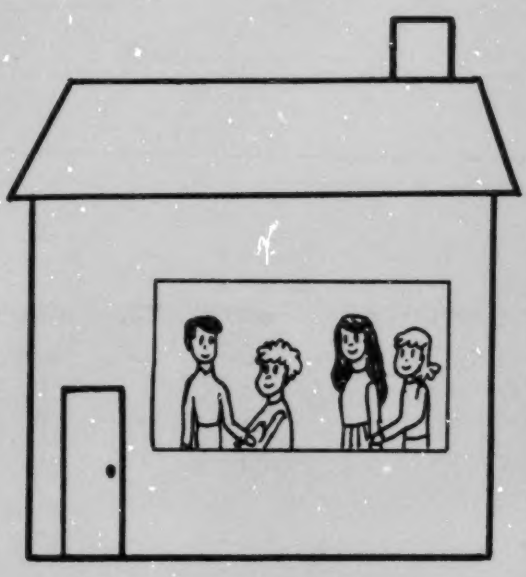
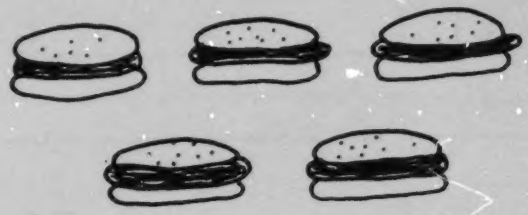
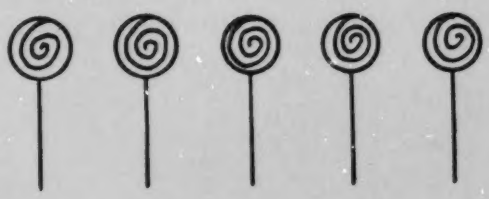


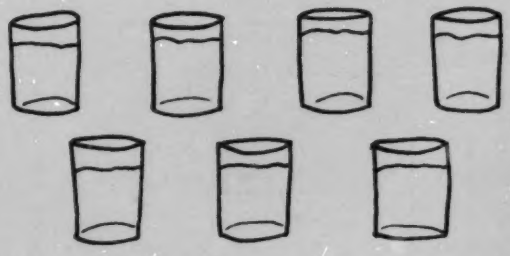
P.O. 0.03.01.02

NAME: _____ CLASS: _____

My friend loves to eat.
Put an X on each thing I tell you he ate.
How many are left?







0.10.11 COMPARATIVE SIZE TERMS

(4 lessons)

PERFORMANCE OBJECTIVES

The student will be able to...

0.10.11.01 distinguish between shorter than and as short as;

e.g.,

block A is shorter than block B

block A is as short as block C

0.10.11.02 distinguish between longer than and as long as;

e.g.,

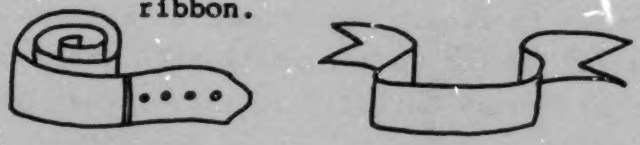
block A is longer than block B

block A is as long as block C

0.10.11.03 estimate which object is about as long as or as wide as;

e.g.,

The belt is about as wide as the ribbon.



0.10.11.04 recognize the terms farther and nearer when referring to distance.

e.g.,

- Objects in the room.
- A neighborhood map study.

0.10.11

VOCABULARY

TERMS

long/longer/longest
longer than
as long as
shorter than
as short as
as wide as
farther
nearer
same size

GETTING STARTED

Prepare and distribute a bucket of water and brushes to each group of students. Clear an area in the playground or work at the chalkboard or easel. Say, "We are going to paint lines. Paint a line. Now paint a longer line. Paint the longest line of all." Check to see that each student increases the size of the lines. Say, "Paint another line. Now paint a shorter line. Paint the shortest line of all." Check to see that each student paints lines that decrease in length.

Prepare several cartons filled with blocks. Designate several "construction sites" by outlining them in chalk or masking tape. Ask one student to stand at each "site". Pointing to the "construction sites", say, "Pretend you are builders. You are on a street where apartment houses are being built. Use your blocks to build the biggest building you can." After a few minutes ask the students to stop. Say, "Look at all the buildings. Which is the biggest? Which is the smallest? Whose building is smaller than Lisa's? Whose building is larger than Scott's?" Repeat this procedure.

0.10.11

0.10.11.01 distinguish between shorter than and as short as

STRATEGY 1: Prepare bags filled with objects of different lengths, e.g., pencil, ruler, crayon, toothbrush, paintbrush and at least two objects of equal length. Distribute the bags to students and say, "Take out the paint brush. It is short. Take out the toothbrush. The toothbrush is shorter than the paint brush. Look in your bag to find other objects which are shorter than the paintbrush. What are they?"

Say, "Look in your bag and take out the crayons." Hold up a blue crayon and a red crayon and say, "My red crayon is as short as my blue crayon. Is your black (red, orange...) crayon as short as your pink (yellow, green...) crayon?" Repeat this procedure.

STRATEGY 2: Distribute five red and five blue interlocking blocks to each student. Say, "Build a short stack using five red blocks. This is a short stack. Build another stack with the blue blocks which is as short as the red stack. How many blocks did you use? (5) The blue stack is as short as the red stack. The red stack is as short as the blue stack. They are both the same size." Separate both stacks of blocks and say, "Build a short stack using four blocks. This is a short stack. Build a shorter stack than the first one. This stack is shorter than the first stack." Repeat this procedure using different amounts of interlocking blocks.

0.10.11.02 distinguish between longer than and as long as

STRATEGY 1: Prepare straws, paintbrushes, kindergarten building blocks, new pencils and rulers. Distribute a straw

STRATEGY 1: cont'd

and a paintbrush to each student. Say, "Place your straw and paintbrush next to each other. Can you tell which is longer? The object that reaches farther than the other is the longer object. Which object is longer? The paint brush is longer than the straw. Find another object which is longer than the straw. How do we know if the object is longer? Match the objects to see which is longer."

Repeat this procedure using the other objects.

STRATEGY 2: Prepare and distribute colored rods and a paper bag to each student. Say, "Find a yellow rod. Find another yellow rod. Match these two rods. Which is longer? The rods are the same size. One yellow rod is as long as another. Now find a brown rod. Place the brown rod and the two yellow rods in a paper bag. How can you find the two yellow rods without looking inside the paper bag? The brown rod feels longer than the yellow rods and the yellow rods feel as long as each other."

Repeat this procedure using the other rods.

0.10.11.03 **estimate which object is about as long or as wide as**

STRATEGY 1: Prepare popsicle sticks and ribbons, paper strips and string in a variety of lengths and colors. Be sure to have some of equal length. Randomly place these items, stretched full length, on a table. Hold up a length of red ribbon. Say, "How can we tell which ribbons are about as long as this red ribbon? (Demonstrate placing the ribbons end to end.) Can we guess which ribbon is about as long as this red ribbon without placing them end to end?" Ask a student to select a ribbon he/she thinks is

0.10.11

STRATEGY 1: cont'd

about as long as the red ribbon and hold it up. Say, "This is about as long as the red ribbon." Repeat this procedure with the strings and paper strips until all items of about the same length are side by side. Place each group in a different place on the table.

STRATEGY 2:

Prepare two strips of wide adding machine tape and one strip of narrow adding machine tape, all cut to the same length. Distribute two wide and one narrow strip to each student. Say, "You have three strips of adding machine tape. They are all the same length. How are they different? One is skinnier." Hold up the narrow strip. Say, "The other two are the same width. They are wide." Hold up the wide strips. Say, "Look at your strips. Find the strips that are as wide as each other and place them next to each other on the table." Repeat this procedure using other objects.

0.10.11.04 **recognize the terms farther and nearer when referring to distance**

STRATEGY 1:

Prepare a cart, wagon or any vehicle on wheels which will hold a student. Clear an area for movement. Select an area which represents the land. Ask a student to pretend that he/she is in a boat and say, "You are in a boat at sea. You row, and row, and row. Suddenly you see land. You row toward the land. It is getting nearer and nearer. You row some more. You are near the beach. You land on the beach. You spend the day there playing and eating your lunch. Then you decide to leave. You climb back into your boat. You row and row. Now you are moving farther away from the land. You

STRATEGY 1: cont'd

row and row some more. You are getting farther and farther from land. You are out at sea again."

Ask the students to stand in a line facing you. Say, "In order to move nearer to me, what should you do?" (Move forward.) When the students are near you, say, "Now you are nearer to me. I can touch each of you. What should you do to move farther from me?" (Move backwards.) Allow each student to give directions to other students to move nearer or farther away from him/her.

STRATEGY 2:

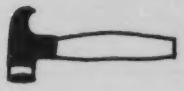
Prepare several classroom objects, e.g., chalk, eraser, book, crayons, scissors. Position objects on a table at varying distances from one another. Ask students to look at the objects. Say, "Which object is near the eraser? Which is nearer the eraser, the chalk or the ruler? Which object is far from the ruler? Which object is farther from the ruler, the book or the crayons?" Ask a student to rearrange the objects and repeat this procedure.

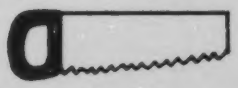
Reinforce nearer and farther by positioning students around the classroom. Say, "Who is near Lisa? Is Terry or Michael nearer to Lisa? Who is near the chalkboard? Is Lisa or Terry nearer the chalkboard?" Repeat this procedure using other examples.

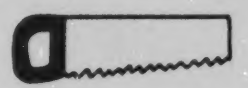
P.G. 0.10.11.01

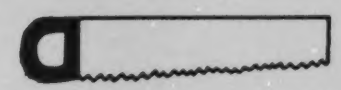
NAME: _____ CLASS: _____

In each row, draw a circle around the picture that is as short as the first picture.







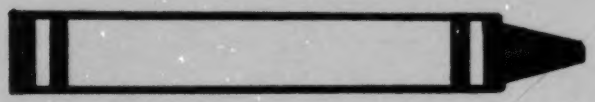


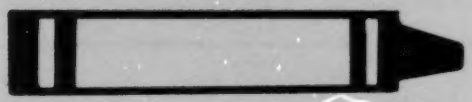
P.O. 0.10.11.01

NAME: _____ CLASS: _____

In box 1, color the shorter crayon.
In box 2, draw a shorter crayon.

1.





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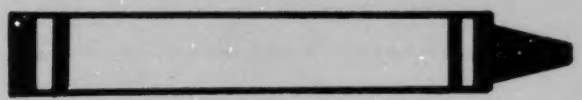

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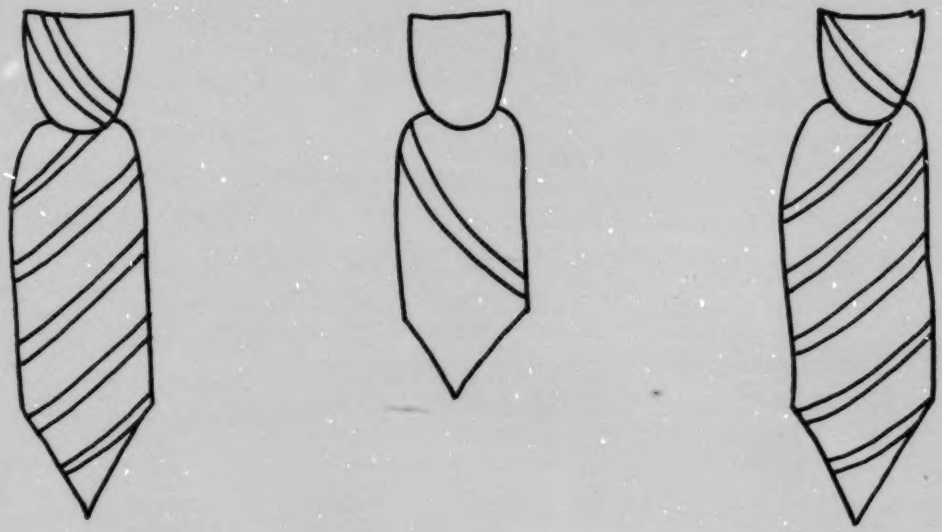
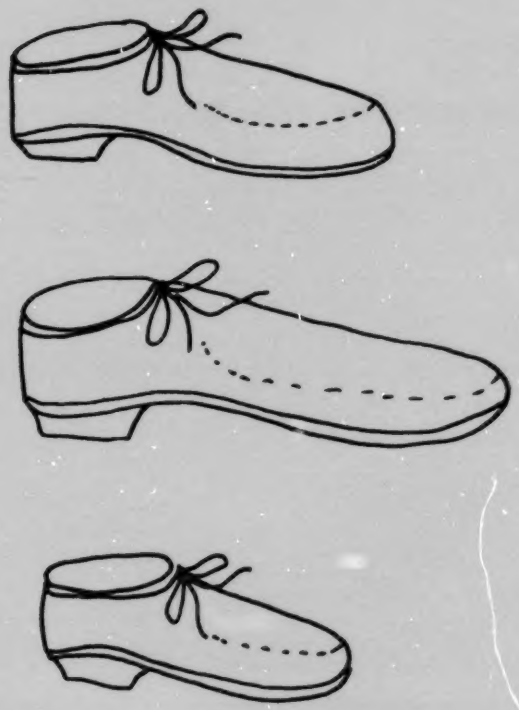
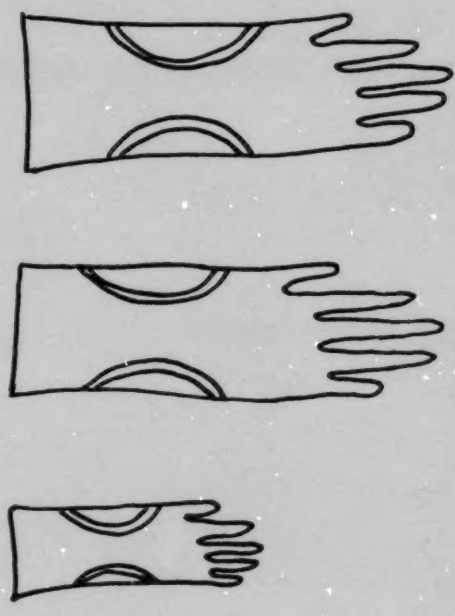
P.O. 0.10.11.02

NAME: _____ CLASS: _____

Color the tie that is as long as the first tie.
Color the shoe that is longer than the shoe on top.
Color the glove that is as long as the glove on top.







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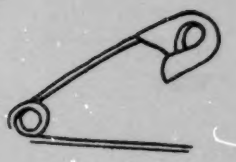
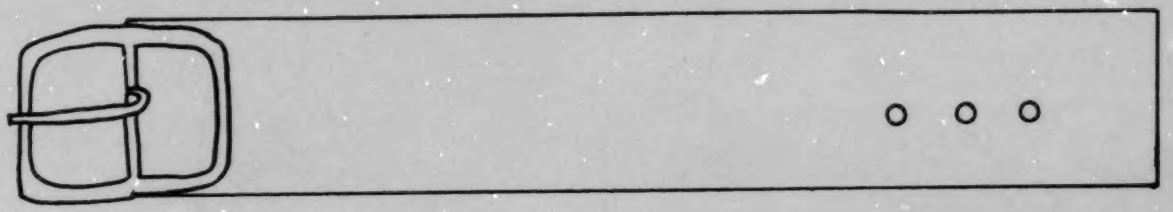
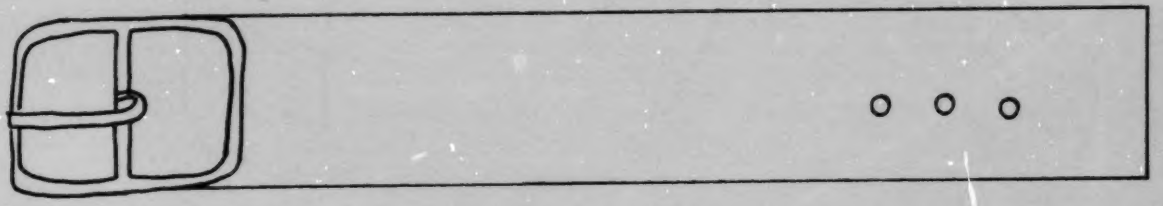
P.O. 0.10.11.03

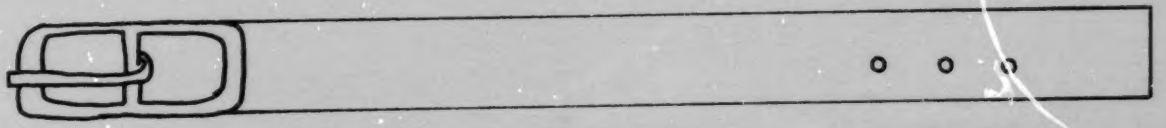
NAME: _____ CLASS: _____

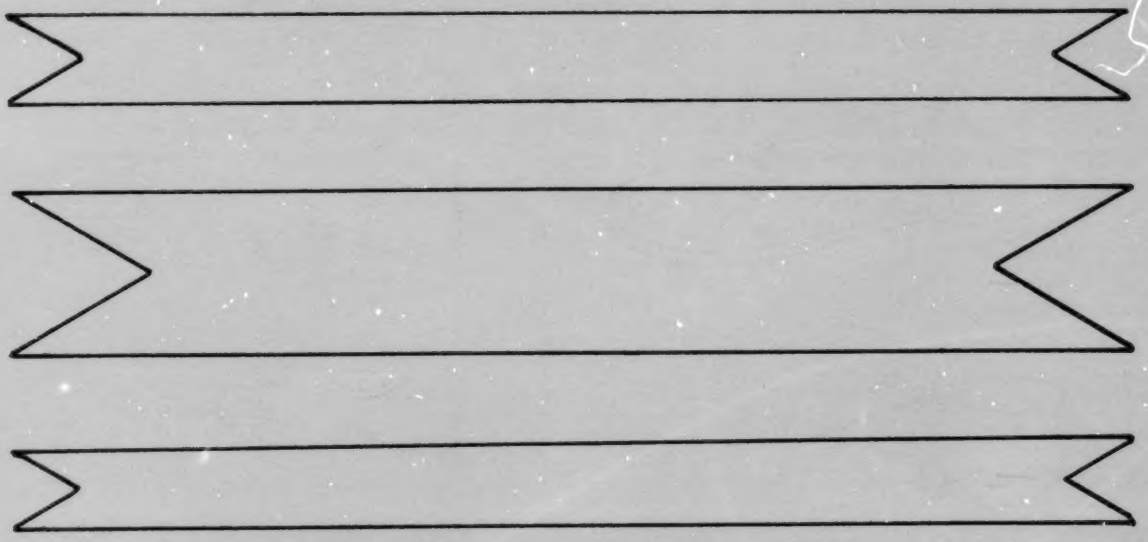


Color the belt that is as wide as the top belt.
Color the ribbon that is as wide as the top ribbon.





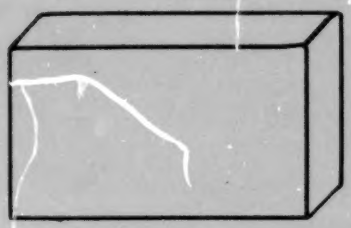


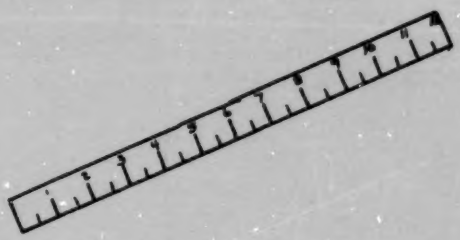


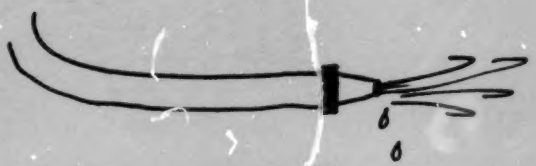
P.O. 0.10.11.03

NAME: _____ CLASS: _____

Look at the snake.
Color the objects that are about as wide as the snake.



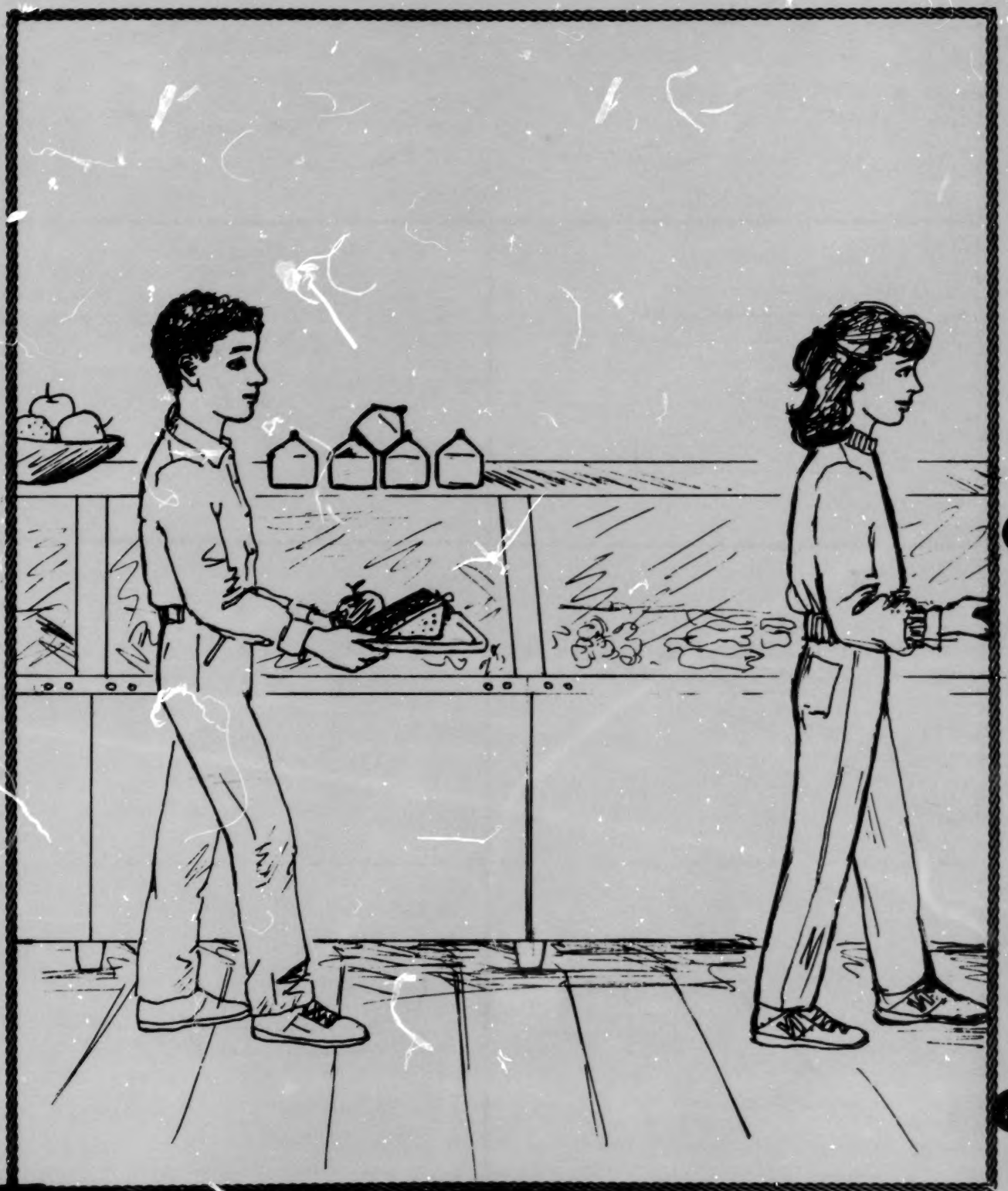




P.O. 0.10.11.04

NAME: _____ CLASS: _____

Place an X on the student who is nearer to the cartons of milk.



P.O. 0.10.03,04

NAME: _____ CLASS: _____

Color the kite which is farther up in the sky.

Unit 36

0.10.12 COINS: NICKEL AND DIME

(3-4 lessons)

PERFORMANCE OBJECTIVES

The student will be able to...

0.10.12.01 recognize and name a nickel;
e.g.,

= nickel

0.10.12.02 recognize and name a dime;
e.g.,

= a dime

0.10.12.03 discriminate among a penny, nickel and dime.
e.g.,

penny

nickel

dime

0.10.12

VOCABULARY

TERMS

cash register
penny
nickel
dime

GETTING STARTED

Prepare a toy cash register or a picture of one, empty food containers, e.g., cookie boxes, soup cans, juice and milk containers, a basket, a shopping bag and play money. Ask one student to pretend to go shopping in the supermarket. Ask another student to pretend to be the cashier who collects the money. Say, "Pretend you are at the supermarket. Place cookies, juice and milk in your basket. What must you do before you take your groceries home? (Pay for them.) Go to the cashier near the cash register and give him/her your money. The cashier will pack your things in the shopping bag. Now you may take your groceries home." Repeat this procedure with several students.

Prepare pictures showing everyday experiences which require money, e.g., riding a bus, buying food, going to the movies, and pictures showing experiences which are free, e.g., picking flowers, hiking, swimming, running. Say, "Look at the pictures. Which pictures show people doing things that cost money? Which pictures show people doing things which don't cost money?"

Ask the students to describe other situations which are either free or cost money.

0.10.12

0.10.12.01 recognize and name a nickel

STRATEGY 1: Prepare and distribute nickel facsimiles for each student. Say, "This represents a nickel. It is worth five cents. What color is it? How big is it? What shape is it? What do you see on the nickel? The man on the nickel is Thomas Jefferson. He was once the President of the United States. The building on the back is his home. It is called Monticello. The words on the nickel say, 'In God We Trust'." Write an experience chart using this information.

STRATEGY 2: Prepare and display a selection of various small classroom objects, e.g., chalk, crayons and erasers. Distribute a play nickel to each student. Ask the students to look at the coin. Say, "This coin is called a nickel. It is worth five cents. It is silver. It is round. We have a pretend school supply store. We are going to use our nickels to buy school supplies. You can buy anything you want. Each item on the table costs one nickel. Choose your item and say, 'Here is my nickel. I would like to buy... '" Allow each student an opportunity to purchase an item.

0.10.12.02 recognize and name a dime

STRATEGY 1: Prepare dimes, paper and crayons. Distribute a dime to each student identifying it by name. Adapt the procedure used in Strategy 1 of P.O. 0.10.12.01 to describe the dime.

STRATEGY 2: Hold your hands behind your back. Say, "I am holding a coin behind my back. The coin is worth ten cents. It is silver. It is the smallest coin.

STRATEGY 2: cont'd

It is round. It is called a dime." Bring both hands forward with the dime hidden within your fist. Say, "If you can tap the hand in which I've hidden the dime, you can hide it next." Ask a student to come forward to tap the back of the hand that he/she believes contains the dime. The student must say, "I think the dime is in this hand." Repeat this procedure with students hiding the dime from each other.

0.10.12.03 discriminate between a penny, nickel and dime

STRATEGY 1: Prepare pictures of toys labeled with 1¢, 5¢, or 10¢ price tags and several pennies, nickels and dimes. Ask the students to identify each coin and say its name and its value. Say, "I went to a wonderful toy store where every toy was on sale. Some toys cost a penny, some toys cost a nickel and some toys cost a dime. Look at the pictures and decide which toy you want to buy. Tell us the name of the toy you want to buy. Hold up the correct coin and tell us the name of the coin."

Continue this procedure until each picture is bought and each student has had at least one turn.

STRATEGY 2: Prepare pennies, nickels, dimes, crayons. Fold paper into three columns and label each column.

e.g.,

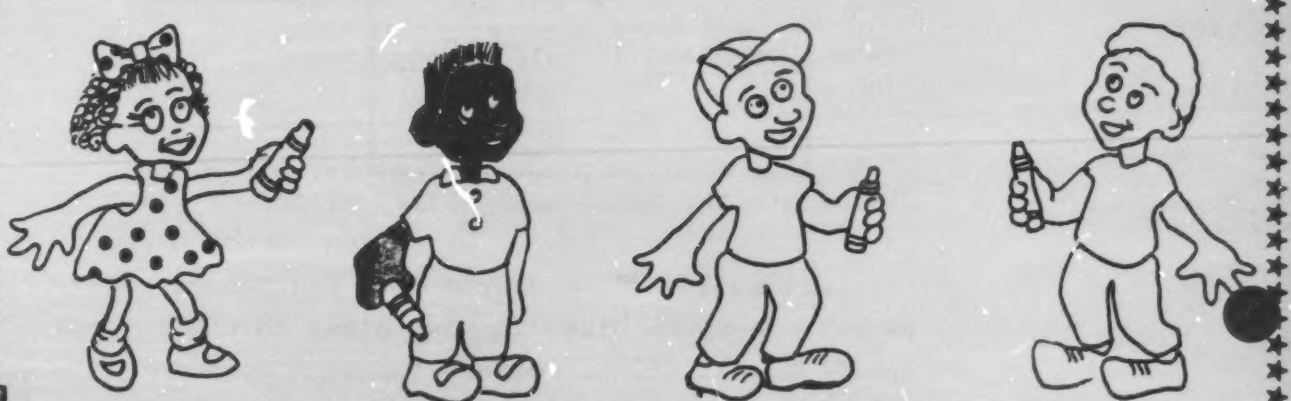
Pennies	Nickels	Dimes

Distribute the materials. Say, "Place your finger on the column labeled 1. Place your penny under that column and rub a crayon over the penny. Make as many penny rubbings in your penny column as you can." Repeat this procedure for each coin in each column.

P.O. 0.10.12.01 -.03

NAME: _____ CLASS: _____

Circle the dimes.
Place an X on the nickels.
Color the pennies brown.



0.12.02 GRAPH READING

(2 lessons)

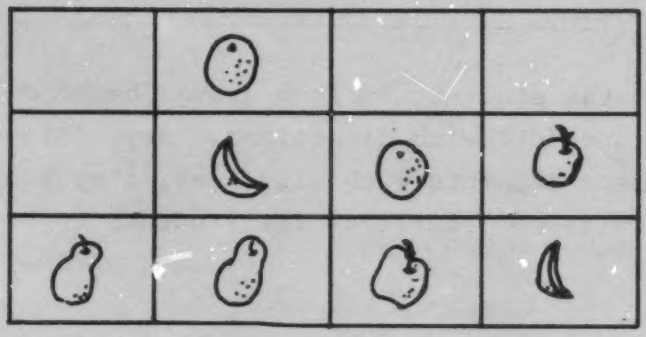
PERFORMANCE OBJECTIVES

The student will be able to...

0.12.02.01 construct and interpret a simple picture graph.

e.g.,

Fruits Eaten By Class K



Mary Stanley Jenny David

What fruits did David eat?

Who ate the greatest number of fruits?

...least number of fruits?

0.12.02

VOCABULARY

TERMS

graph
record

GETTING STARTED

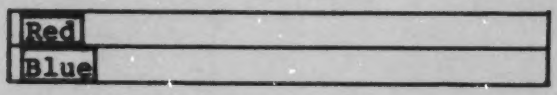
Prepare and arrange on the chalkboard ledge at least four pictures from each of the following categories: transportation, housing, clothing and furniture. Using appropriate pictures, label a tray for each category. Ask students to sort the pictures into the appropriate tray.

Ask the students to form groups based on a common trait by listening to and following directions. Say, "Students wearing a belt, jump once. Students with blue eyes, clap your hands above your heads." Provide opportunities for students to become leaders.

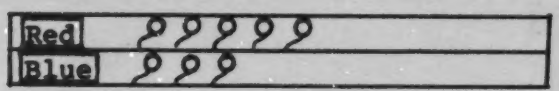
0.12.02

0.12.02.01 construct and interpret a simple picture graph

STRATEGY 1: Prepare for each student a picture of a balloon, red and blue crayons and glue. Prepare a chart with two columns. Paste one blue and one red square on the chart.
e.g.,



Distribute the balloon pictures. Say, "Color the balloon either red or blue. As I call you name paste your picture in the column that matches the color of your balloon." When the students have finished say, "Which color did most students choose? Which color did the fewest number of students choose? How many students in our class chose blue? Red? How can you tell?"



STRATEGY 2: Prepare name cards for each student and an experience chart with a line drawn down the middle. Label one side of the chart <u>Shoes</u> and the other side <u>Sneakers</u>. Distribute a name card to each student. Say, "Paste your name card in the column that tells which type of footwear you are wearing today. Are more students wearing shoes or sneakers? What kind of footwear are the fewest students wearing? How many students are wearing sneakers? How can you tell?"
e.g.,

<u>Shoes</u>	<u>Sneakers</u>
Alan	James
Barbara	

P.O. 0.12.02.01

NAME: _____ CLASS: _____

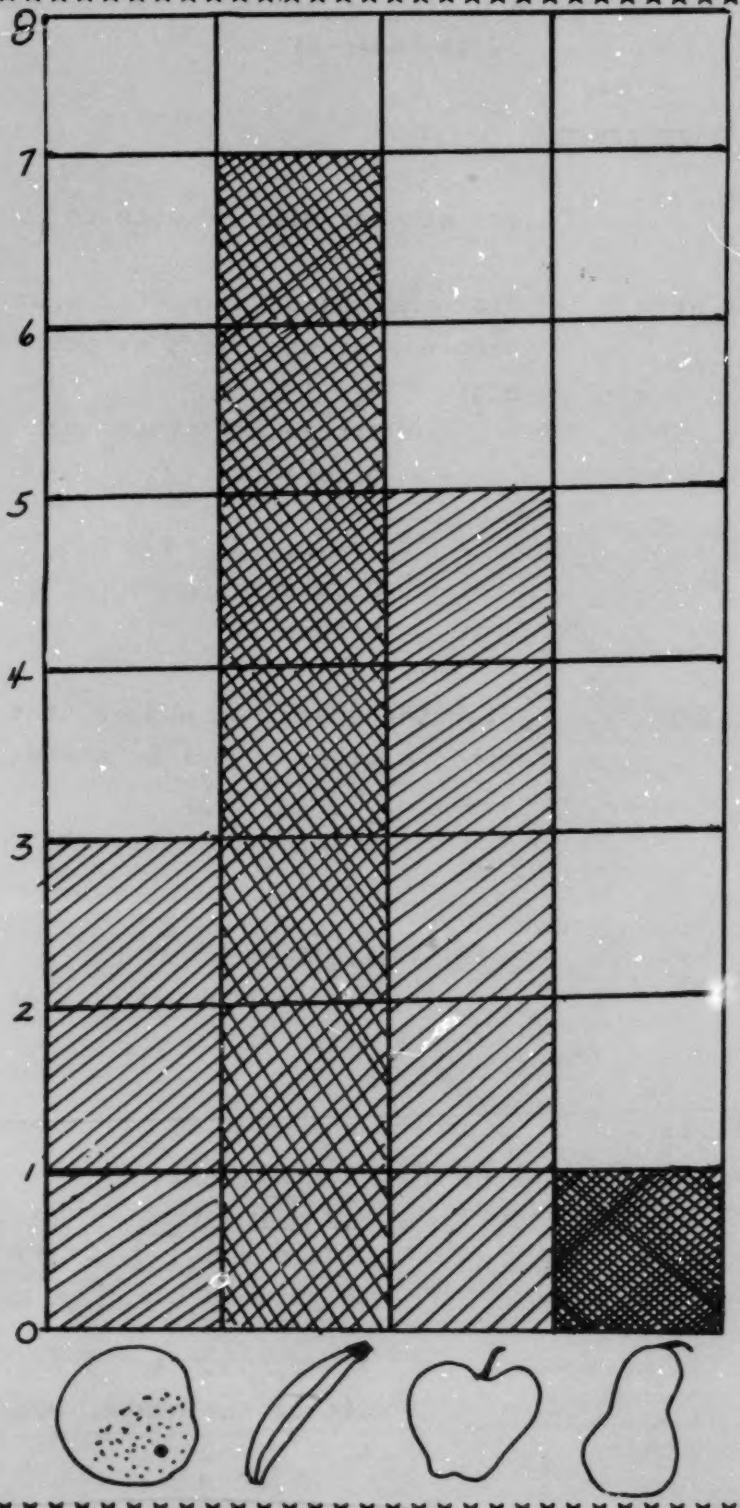
Distribute 1" gummed circles, not more than 5 of a color, to each pupil.
Ask students to paste them in the appropriate boxes.
Which column has the most circles? Which column has the fewest circles?

Blue	Red	Green	Yellow

P.O. 0.12.02.01

NAME: _____ CLASS: _____

Students shaded in the boxes on this graph to show which fruit they liked the best. Find the fruit that was chosen most often. Color that fruit. Find the fruit that was chosen the least. Color that fruit.



0.01.14 SEQUENCE

(3 lessons)

PERFORMANCE OBJECTIVES

The student will be able to...

0.01.14.01 pick the object or number that comes before a given object or number;

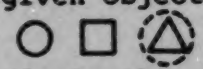
e.g.,

Circle the shape that comes before the △.

1, 2, 3, (4), 5

Circle the number that comes before 5.

0.01.14.02 pick the object or number that comes after a given object or number;

e.g., 

Circle the shape that comes after the □.

1, 2, 3, 4, (5)

Circle the number that comes after 4.

0.01.14.03 pick the number that is between two objects or numbers.

e.g.,

Circle the □ to show that it is between the ○ and △.

1, 2, (3), 4, 5

Circle the number between 2 and 4.

0.01.14

VOCABULARY

TERMS

before
after
between
last

GETTING STARTED

Ask five students to form a line facing in one direction. Say, "Who is standing in front of Inez? Who is standing behind William?" Repeat this procedure for several groups of students.

Display pictures of youngsters in daily life situations, e.g., getting dressed, boarding a school bus, eating lunch in the school cafeteria, sleeping... and a chart labeled Day and Night. Ask students to sort the pictures on the proper side of the chart.

0.01.14

0.01.14.01 **pick the object or number that comes before a given object or number**

STRATEGY 1: Prepare and distribute pictures of a house, a horse and a dog to each student. Demonstrate and say, "Line up your pictures. Place the dog last. The house and horse are before the dog." Ask the pupils to rearrange the pictures and tell what they've done using the word before.

STRATEGY 2: Prepare dot cards for the numerals 0 through 10. Hold up the card with five dots. Say, "Which number comes before five? Find the dot card which shows that number. Yes, four comes before five." Repeat this procedure with the other cards.

0.01.14.02 **pick the object or number that comes after a given object or number**

STRATEGY 1: Display pictures of a car, a television and a stereo on the chalkboard and distribute similar pictures to each student. Say, "Find the picture of the car. Place the television and the stereo after the car. Provide several opportunities for the pupils to rearrange their pictures using the term after.

STRATEGY 2: Prepare dot cards for the numerals 0 through 10. Hold up the cards with three and four dots. Say, "Four comes after three." Place the three and four cards on the chalkboard ledge. Hold up the seven card. Say, "Which number comes after seven? Find that dot card and place it on the chalkboard ledge after the seven." Repeat this procedure with the other cards.

0.01.14

0.01.14.03 **pick the object or number that is between two objects or numbers**

STRATEGY 1: Prepare dot cards, 1 through 5. Ask five pupils to form a line facing one direction. Have each student hold, in sequential order, a dot card. Say, "We made a train. Each car on the train has a number. Who is the number one car? (Kathy) What card is Kathy holding? (Kathy is holding a one.) Who is the number three car? What card is Jose holding? Marsha is between Kathy and Jose. What card is Marsha holding? (two) The two is between the one and the three. Who is standing between Kathy and Jose?" Repeat this procedure using other numbers.

STRATEGY 2: Prepare and distribute green and red beads and a string or pipe cleaner to each student. Say, "Place a red bead between two green beads." Assist the pupils with the pattern. Form other patterns using these beads while emphasizing the concept between.

P.O. 0.01.14.01

NAME:_____ CLASS:_____

Look at the way the animals are facing. Use yellow to color the animal before the monkey. Use black to color the animal before the zebra. Use brown to color the animal before the bear.

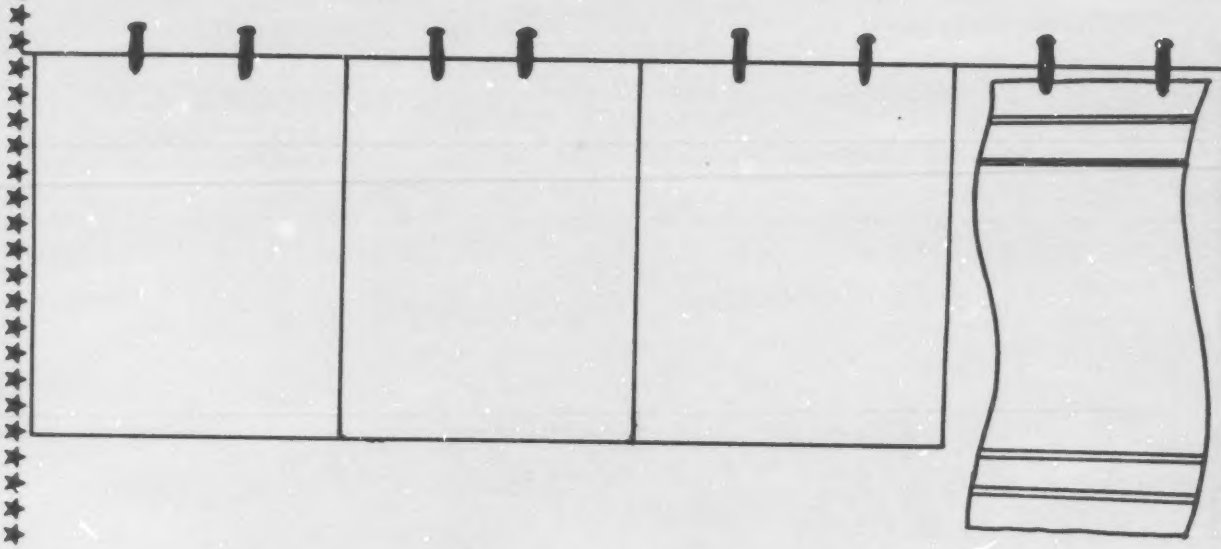
136

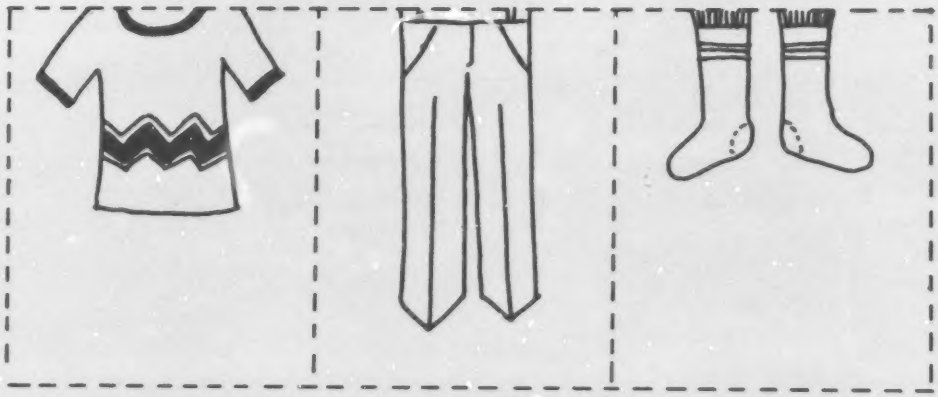
135

P.O. 0.01.14.01

NAME: _____ CLASS: _____

Cut out the clothing. Find the blanket on the clothes line.
Place the pants before the blanket.
Place the shirt before the pants.
Place the socks before the shirt.



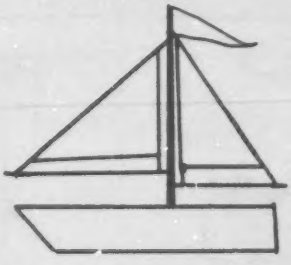


P.O. 0.01.14.02

NAME: _____ CLASS: _____

Place an X on the youngster standing after the ball, on the numeral which comes after 4 and on the numeral which is after the boat.

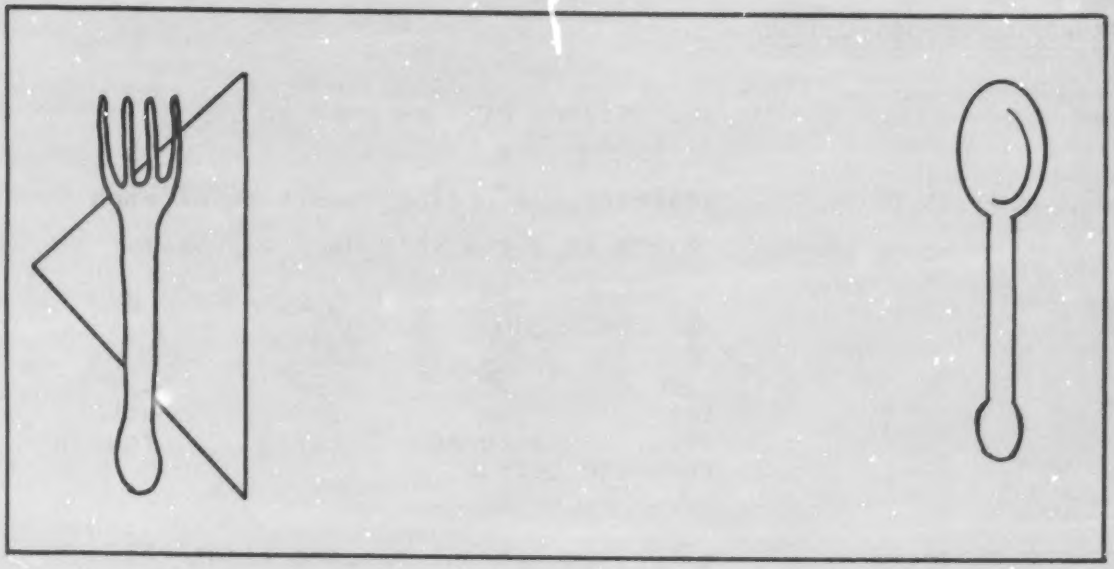
0 1 2 3 4 5

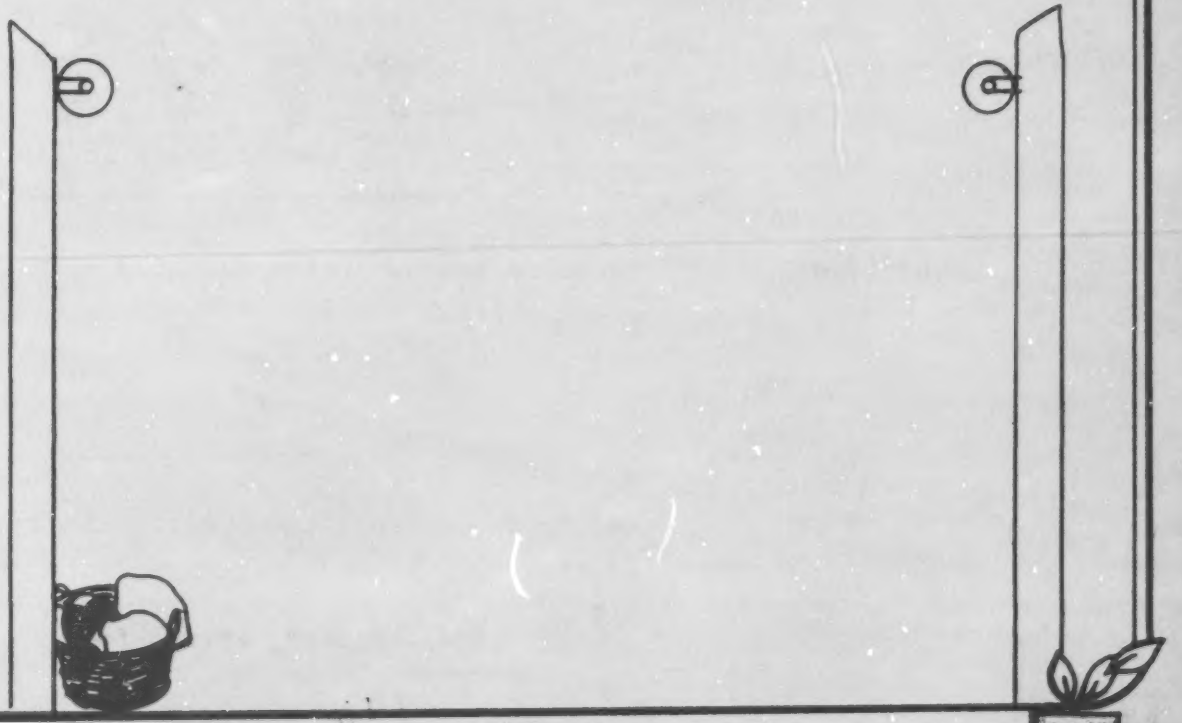
6 7 8  9

P.O. 0.01.14.03

NAME:_____ CLASS:_____

Draw a plate between the fork and the spoon.
Draw a clothesline between the two poles.





0.01.15 ORDINAL NUMBERS FIRST THROUGH FOURTH

(4 lessons)

PERFORMANCE OBJECTIVES

The student will be able to...

0.01.15.01 identify the ordinal position of each object in a row through 4 objects;

e.g.,

1st first 2nd second 3rd third 4th fourth

from the left.

0.01.15.02 match the ordinal numbers first through fourth to the cardinal numbers (numerals) one to four;

e.g.,

first second third fourth

Start here: 1 2 3 4

0.01.15.03 identify the numeral associated with a given ordinal number;

e.g.,

2nd

second,

0.01.15.04 recite the ordinal names first through fourth.

e.g.,

first, second, third, fourth

0.01.15

VOCABULARY

TERMS	SYMBOLS
first	1st
second	2nd
third	3rd
fourth	4th

GETTING STARTED

Tell students the story of Goldilocks and the Three Bears. Say, "If Goldilocks became a member of the Three Bears family, how many bowls of cereal would they need? How many chairs? How many beds?"

Teach the fingerplay "Five Little Birds" - (Start with the thumb and continue to the pinky).

Five little birds sitting in a tree,
Bird one said, "What's this I see?"
Bird two said, "A cat wants some fun."
Bird three said, "Let's run and run." (Fingers run back and forth.)
Bird four said, "Let's hide in the shade."
Bird five said, "Oh, we're not afraid" (Point thumb towards self)
Then M-E-O-W - went the cat and away the birds flew. (Put hands behind back.)

0.01.15

0.01.15.01 **identify the ordinal position of each object in a row through 4 objects**

STRATEGY 1: Prepare and distribute four colored blocks to each student. Demonstrate and say, "Place the blue block first. This is the first block." Place the green block second, the yellow third and the red fourth, saying, "This is the second... " Rearrange the blocks and say, "Which cube is third? ...first? ...fourth? ...second?" Hold, touch or point to each block in random order using the ordinals.

STRATEGY 2: Use worksheet 43a. Demonstrate as you say, "Place your marker on the first (second, third, fourth) car. Color the third car yellow, the second bus blue..."

Ask the students to tell stories about the pictures.

0.01.15.02 **match the ordinal numbers first through fourth to the cardinal numbers (numerals) one to four**

STRATEGY 1: Prepare numeral cards 1 through 4 and cards for ordinal number words first through fourth. Ask four students to form a line in front of the chalkboard, one behind the other, facing in one direction. Give each student a numeral card. Ask the students to show their cards as you point to them. Say, "John is number one. He is first." Tape the card labeled "first" on the chalkboard above John. Say, " Maria is number two. She is second." Tape the card labeled "second" above Maria. Repeat this procedure with the students holding numbers 3 and 4.

STRATEGY 1: cont'd

Ask the students to change places, select the appropriate numeral card, and stand under the card with the matching ordinal word. Say, "Maria is now number one. We can say she is first. Jean is now number two. We can say she is _____. What number is Jose? What is another way of saying his number?" Repeat this procedure.

STRATEGY 2:

Prepare sets of toy cars. Label each car 1 through 4. Prepare a picture of a parking lot with four spaces. Demonstrate as you say, "Park car 1 in the first parking space. Park car 2 in the second parking space..." (Repeat this procedure varying the order in which the cars are parked.)

0.01.15.03 identify the numeral associated with a given ordinal number

STRATEGY 1:

Prepare cards numbered 1 through 4, and four animal pictures. Say, "Four animals ran a race. The animal who ran the fastest was the first to finish. The animal who finished next was in second place. The animal who finished next was in third place. The animal who finished last was fourth. Which animal ran the slowest? Which animal ran the fastest?"

Arrange the pictures in the order in which they finished the race. Ask the students to match the numeral card with the animals to show how they finished the race.

0.01.15

STRATEGY 2: Prepare and distribute paste and strips of (red, blue, green, yellow) paper (1" wide by 6" long) to each student. Number the strips 1 through 4. Say, "Place the strips in order starting with number 1. Which strip is first? (The blue strip is first.) Why did you choose blue as the first strip?" (The numeral one is written on it.) Repeat this procedure for each strip. Demonstrate and say, "We will make a paper chain with our strips. Be sure to start with the first strip."

0.01.15.04 recite the ordinal names first through fourth

STRATEGY 1: Arrange four chairs in a row facing the same direction. Say, "The chair at the beginning of the line is the first chair. Kathy, sit on the first chair." Ask other students to sit on the second, third and fourth chairs. Say, "Who is seated on the first (second, third, fourth) chair?" Repeat this game by changing the order of each student's seat. When the vocabulary has become familiar to the students, ask one of the students to give the instructions.

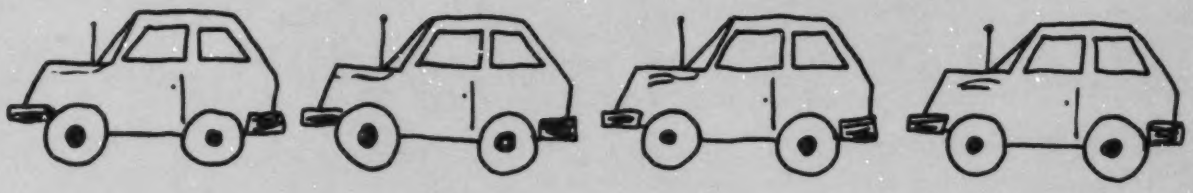
STRATEGY 2: Prepare and distribute to each student, four different color cubes and a rectangular paper strip which has been divided into four equal parts. Label the parts 1 through 4. Say, "Place the red cube in the first box, the yellow cube in the second box... " Repeat this procedure until all of the cubes have been placed. Say, "In which position is the yellow (red, green, blue) cube?"

P.O. 0.01.15.01

NAME: _____ CLASS: _____

Color the first car red, the second truck blue, the third bus green and the fourth helicopter yellow.

1.



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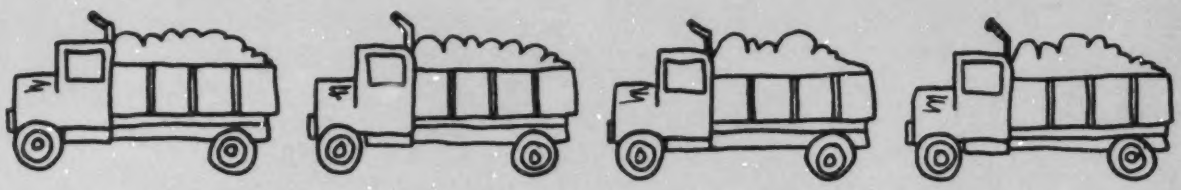

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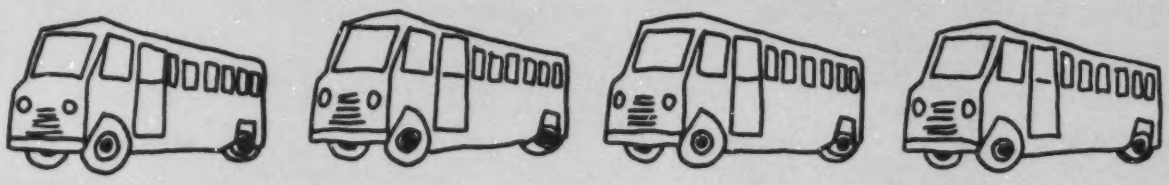
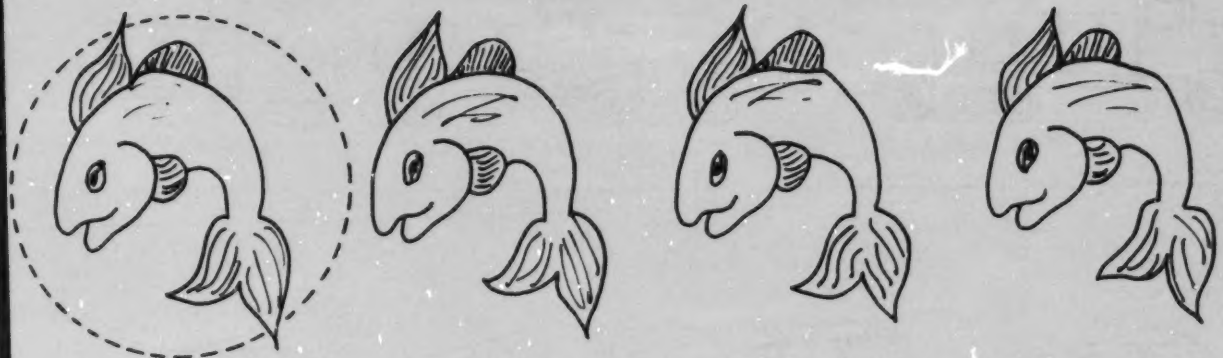


4.

P.O. 0.01.15.01

NAME:_____ CLASS:_____

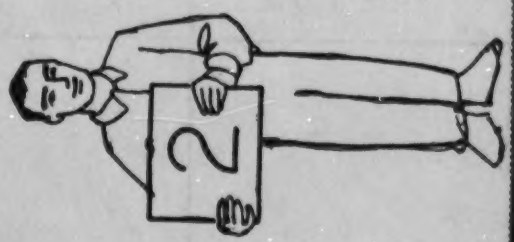
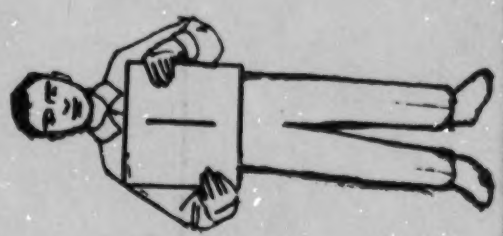
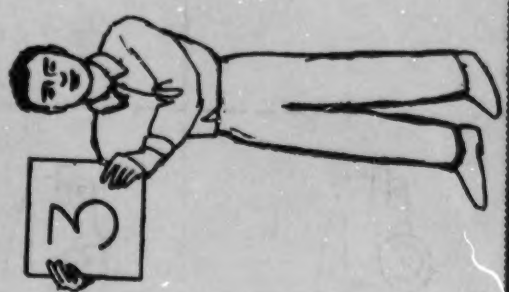
Trace the circle around the first fish. Color the first fish red, the second fish green, the third fish yellow, the fourth and last fish blue.



P.O. 0.01.15.02

NAME: _____ CLASS: _____

Cut out the pictures of the men.
Paste each man in the box with the ordinal number word that matches the numeral card he is holding.

Fourth		
Third		
Second		
First		

148

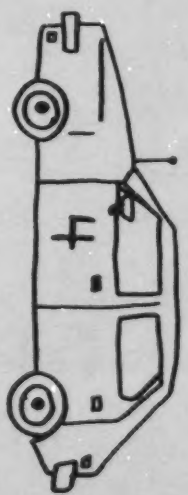
147

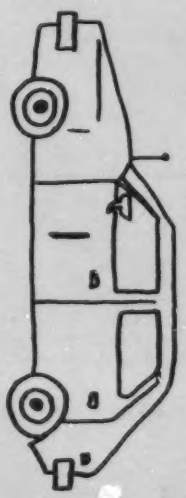
P.O. 0.01.15.02

NAME:_____ CLASS:_____

Color the cars red, yellow, blue and green. Cut them out. Park them in the garage by matching the numbers on the cars with the ordinal numbers in each column.

1st	2nd	3rd	4th





P.O. 0.01.15.03

NAME: _____ CLASS: _____

Show each bird's position by drawing a line from the card to the bird.

2nd

4th

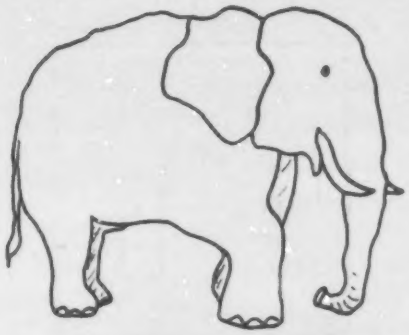
1st

3rd

P.O. 0.01.15.03

NAME: _____ CLASS: _____

Cut on the dotted lines. Place the animals in the following order: The sheep first, the dog second, the bear third, the elephant fourth. Place the ordinal number under the animals.



1st

4th

3rd

2nd

P.O. 0.01.15.04

NAME:_____ CLASS:_____

Color each square a different color.
Identify the position of each square and say the ordinal name.

	4th
	3rd
	2nd
	1st

P.O. 0.01.15.04

NAME: _____ CLASS: _____

Identify each youngster using the ordinal numbers first through fourth.

e.g. The first youngster is closest to the water fountain.

154

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Unit 40

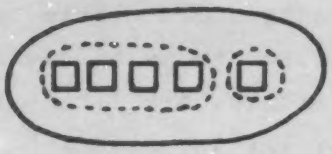
0.02.06 ADDITION EXTENSION

(3 lessons)

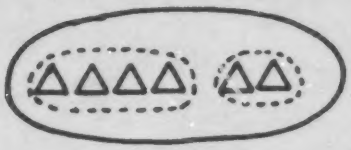
PERFORMANCE OBJECTIVES

The student will be able to...

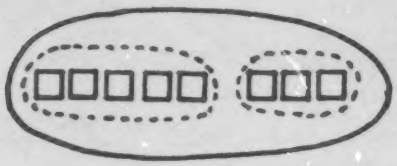
0.02.06.01 add 1 object to 4 through 9 objects; e.g.,



0.02.06.02 add 2 objects to 4 through 8 objects; e.g.,



0.02.06.03 add 3 objects to 5 through 7 objects. e.g.,



GETTING STARTED

Play the game "NAME MY NEW NUMBER". Prepare domino cards for numerals zero through four. Display a 3-dot domino card with one dot covered. Say, "How many dots do you see?" Uncover the one dot. Say, "How many dots are there now?" (3) Repeat this procedure using the other domino cards.

Sing and dramatize the song, "Ten Little Indians".

One little, two little, three little Indians,
Four little, five little, six little Indians,
Seven little, eight little, nine little Indians,
Ten little Indian boys and girls.

0.02.06

0.02.06.01 add 1 object to 4 through 9 objects

STRATEGY 1: Prepare and distribute ten pieces of construction paper, glue or scotch tape and crayons to each student. Demonstrate and ask students to construct ten finger puppets using these materials. Say, "Hold up one hand. How many puppets do you see? Let's count - one, two, three, four, five. Add the thumb from the other hand. How many puppets do you see now? Five puppets plus one more makes six." Continue this procedure through 9 + 1 = 10.

STRATEGY 2: Tell the following story. Ask the students to dramatize the story. Say, "Bobby is setting the dinner table for his father, mother and sisters, Betty, Veronica and Lenore. How many place settings should he set? (5) For whom did he forget a setting? (himself) If he sets a place for himself, how many settings will be on the table? (6) Yes, five settings plus one setting equals six settings. Bobby's friend Peter called to ask if he could play with Bobby and join the family for dinner. How many place settings should Bobby add? How many place settings are now on the table? Who can tell us a number story about Bobby's friend, Peter, and the family dinner table?" (Six people plus one person equals seven, so seven place settings are needed.)

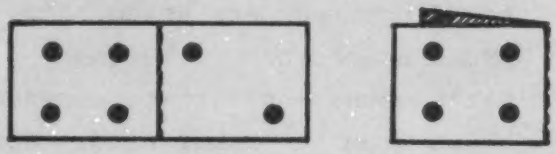
Continue the story until there are ten people eating dinner at Bobby's house.

0.02.06

0.02.06.02 add 2 objects to 4 through 8 objects

STRATEGY 1: Prepare and distribute a set of dot cards to each student. Fold the cards so that the side with two dots is hidden.

e.g.,

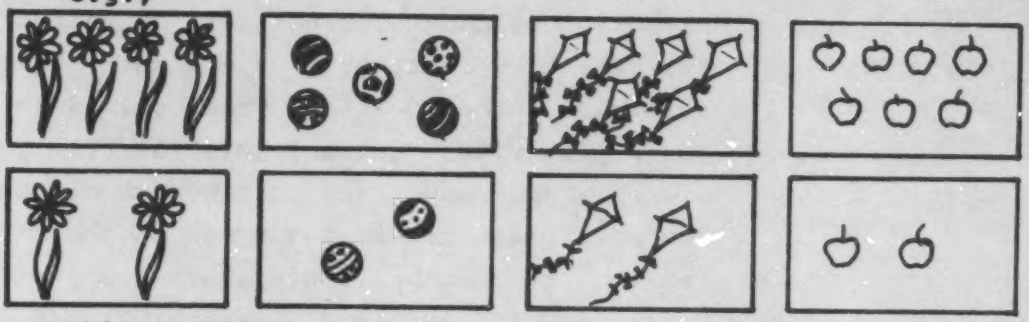


Say, "How many dots do you see? Unfold the card. How many dots are on this part of the card? (2) How many dots are we adding? (2) How many dots are there altogether? Four plus two equals six."

Repeat this procedure using the other dot cards.

STRATEGY 2: Prepare and distribute the following picture cards to each student.

e.g.,



While holding up the first card, say, "Find your flower cards. How many flowers do you see? (4) We're going to add two flowers. How many flowers do we have now? (6) We say 4 + 2 = 6."

Repeat this procedure using the other picture cards. Ask the students to tell a number story about each group of cards.

0.02.06

0.02.06.03 **add 3 objects to 5 through 7 objects**

STRATEGY 1: Prepare and distribute five cubes to each student. Prepare and place a box with additional cubes on each table. Say,

"Let's find out how much fun it could be when five objects are joined by three."

Ask the students to take three cubes from the box and joining them to the original group of five. Say, "With how many cubes did we begin? How many cubes did we add? How many cubes do we have altogether?"

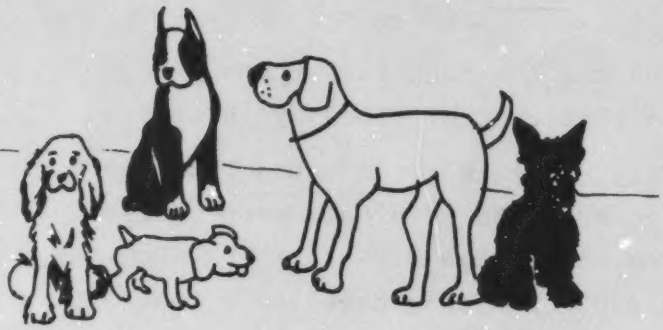
Repeat this procedure using the rhyme adding three to groups of 6 and 7.

STRATEGY 2: Prepare cardboard bead frames with holes punched at either end, shoelaces and green and red beads. The shoelaces should be pushed through one of the holes and knotted at the back of the board. Distribute five red beads and three green beads to each student. Say, "Let's string five red beads. Now string three green beads. How many beads do you have when you add three green beads to your group of five red beads? With how many beads did we begin? How many beads did we add? How many beads did we string altogether?" Repeat this procedure with three green beads added to groups of six and seven red beads.

P.O. 0.02.06.01

NAME: _____ CLASS: _____

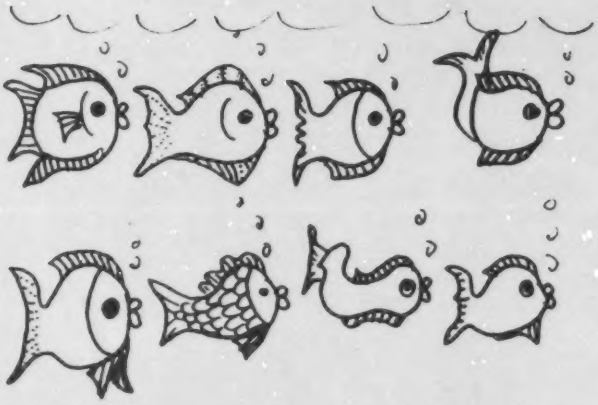
Circle the numeral that tells how many dogs there are altogether.



9 7 6

Circle the numeral that tells how many fish there are altogether.

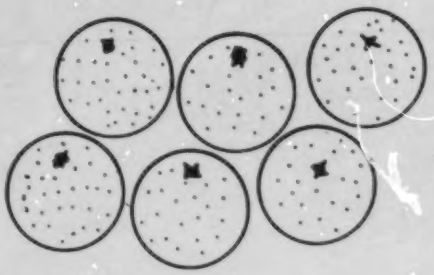
9 7 6

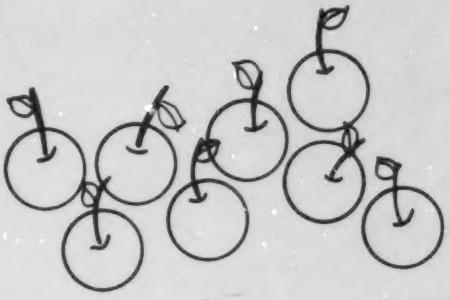


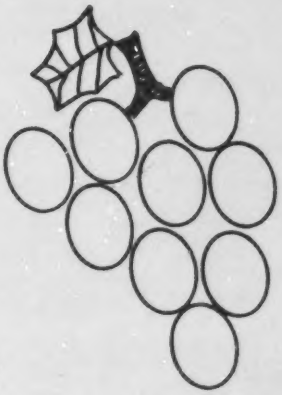
P.O. 0.02.06.01

NAME: _____ CLASS: ____

Draw one more object in each group.
How many objects are in each group now?



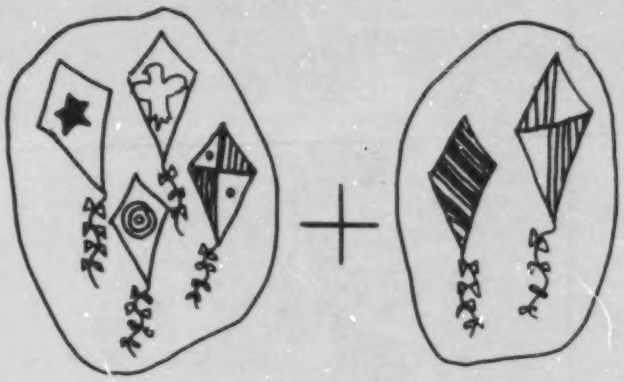


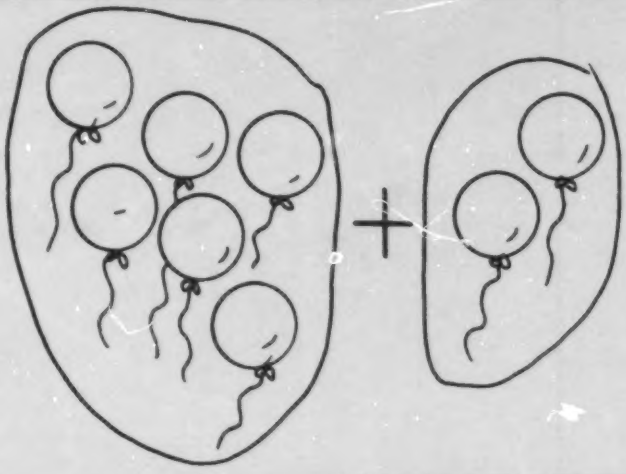


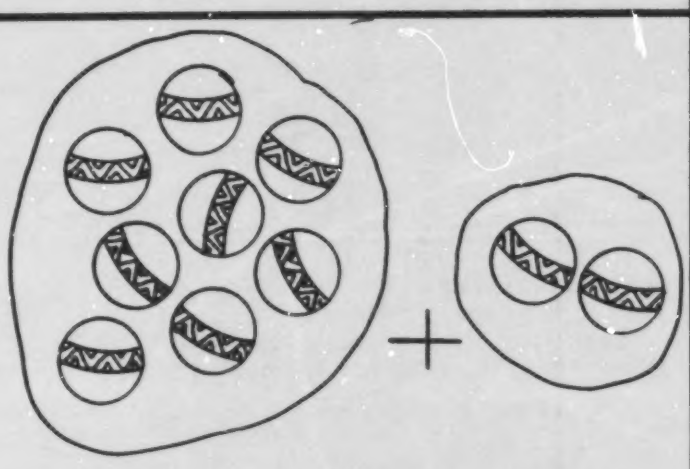
P.O. 0.02.06.02

NAME: _____ CLASS: _____

Count how many kites there are altogether.
Draw that number of kites in the empty box next to the picture of the kit
Continue with the other objects.







P.O. 0.02.06.03

NAME: _____ CLASS: _____

In each box, count the pieces of fruit in the basket and the pieces of fruit next to the basket. How many pieces of fruit are there altogether?

0.12.03 CHANCE EVENTS/PREDICTING

(3 lessons)

PERFORMANCE OBJECTIVES

The student will be able to...

0.12.03.01 distinguish between certain and uncertain in regard to events;
e.g.,
- Is it uncertain that it will rain tomorrow?
- Is it certain that fish swim in water?

0.12.03.02 distinguish between more or less likely in chance situations;
e.g.,
John is a faster runner than Dick. Who would be more likely to win a running race?

0.12.03.03 recognize the outcome of activities as chance (guessing).
e.g.,

0.12.03

VOCABULARY

TERMS

result
certain
uncertain
guess
chance

GETTING STARTED

Prepare a small bag and one block of each of the following colors: yellow, blue, green and red. Ask a student to choose a color, e.g., red. Say, "Put your hand in the bag and take out a block. Did it match the color you chose?" Explain that sometimes you will pick the color you hope to pick and sometimes you won't. Say, "Why can't you be sure of picking the color block you hope to pick?" Continue this procedure with other students.

Present statements to the students that require them to decide if the statement tells something that is real or make believe.
e.g.,

Story of the three bears - make believe.
Astronauts walking in space - real.

0.12.03

0.12.03.01 **distinguish between certain and uncertain in regard to events**

STRATEGY 1: Prepare red paint, several paint brushes, paper, a closed box and a ball.

Distribute paper, brushes and paint. Say, "If you dip your brushes into this paint and paint your paper, what color will your paper be? (red) Are you certain? How do you know?" Ask the students to paint a ball on their paper. Say, "What color is the ball you drew? When you are sure something will happen, we say it is certain."

Hold up a closed box. Say, "Are there pencils in this box? Why can't you be sure what is in the box? When we're not sure, we say we are uncertain."

Repeat this procedure using other examples. Ask students to make up sentences which suggest certain or uncertain events, e.g., A zebra has stripes (certain); The sun will shine tomorrow (uncertain).

STRATEGY 2: Prepare two stick puppets named Sammy Certain and Ursula Uncertain for each student. Introduce the puppets to the students. Say, "If the statement is certain, hold up Sammy Certain. If the statement is uncertain, hold up Ursula Uncertain." Make certain and uncertain statements to the class. Ask the students to make up their own certain or uncertain statements as other pupils respond by holding up the appropriate puppet.

Note to Teacher: Some suggested statements for use with student worksheet 45b are:

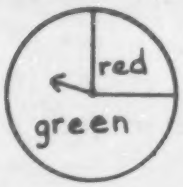
It will rain tomorrow.
It will be dark outside tonight.
A snowball is cold.
We will have chocolate cookies for snack today.

0.12.03

0.12.03.02 distinguish more or less likely in chance situations

STRATEGY 1: Prepare and display a spinner, with unequal sections.

e.g.,



Say, "If we spin the spinner many times, what color do you think it will land on most often? Let's find out if you're right."

Ask students to spin the spinner and record the results on the chalkboard using tally marks.

Red	/
Green	///

Say, "Which color came up most often? Since there was much more green space on the spinner we say the dial is more likely to land on green. Since there is only a tiny red part of the spinner, we say the dial is less likely to land on red."

STRATEGY 2: Prepare a three column chart and a container with eight large blocks and two small blocks. Say, "Look in the box. Are there more large blocks or more small blocks?" If we close our eyes and pick a block, which kind do you think we will pick most often? Let's see if you're right." Ask students to pick a block without looking and tally their picks on the chart.

When all students have had a chance, direct their attention to the chart. Say, "Which column has the most tally marks in it? Since there were more large blocks in the box, we say it was more likely that we would pick a large one and less likely that we would pick a small block."

0.12.03

0.12.03.03 recognize the outcome of activities as chance (guessing)

STRATEGY 1: Prepare and distribute bags, each containing one red, one green and one yellow rod. Say, "Your bags contain a red, a green and a yellow rod. Shake your bag. Without looking, reach in and try to take out the yellow rod and hold it up in the air." Each student will identify his/her rod to see if he/she could guess which rod is yellow. Say, "When you guess, you are taking a chance. You don't know if your guess is right until the situation happens."

Repeat this procedure with other rods, emphasizing that sometimes you guess correctly and sometimes you don't.

STRATEGY 2: Prepare a set of cards numbered 0 through 10. Ask a student to guess the number of a card. Say "Close your eyes and pick a card. Was the card the same as the number you guessed? There was a chance that your number and card would match. There was a chance that they would not match."

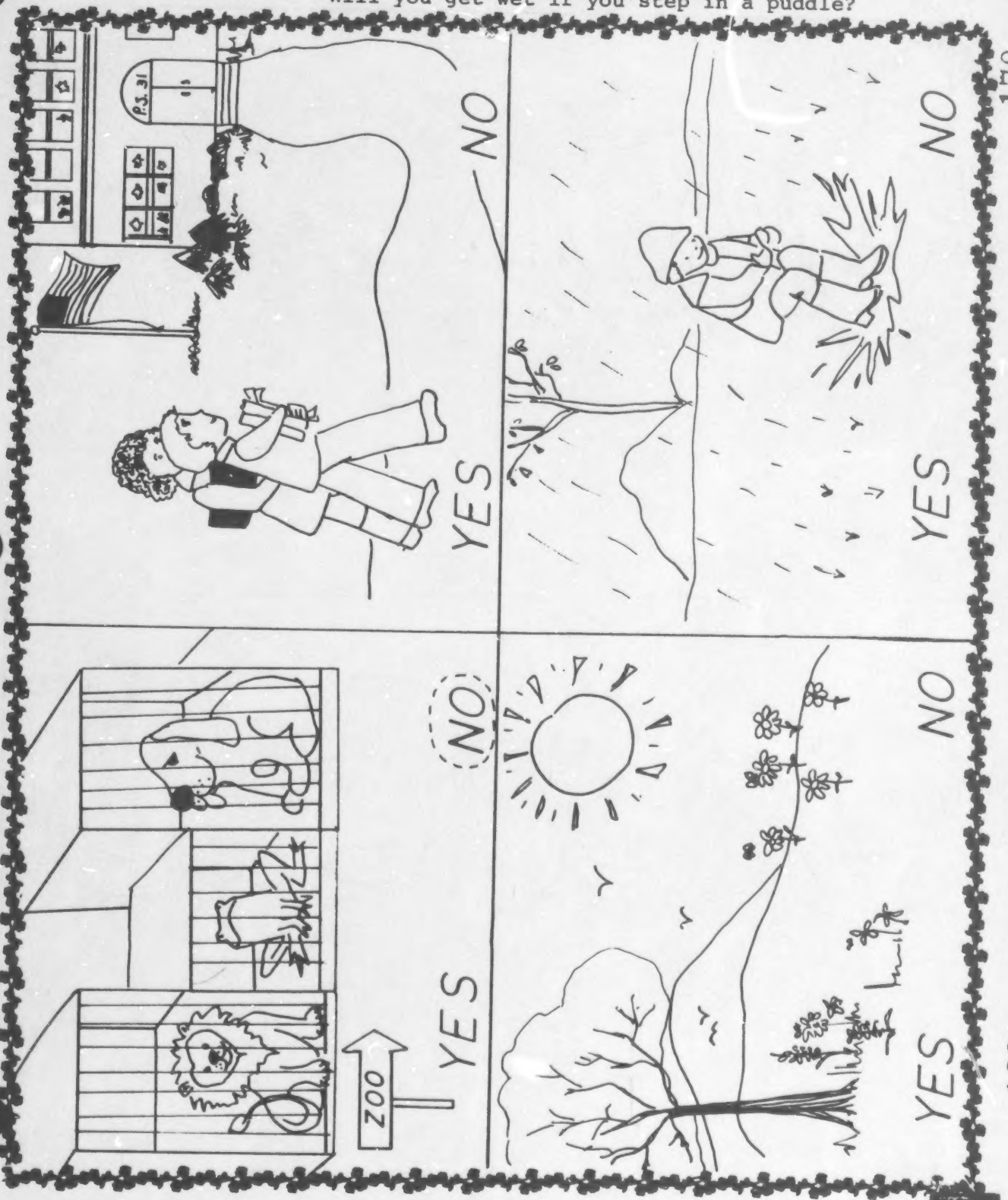
Repeat this procedure.

P.O. 0.12.03.01

NAME: _____ CLASS: _____

Circle Yes or No:

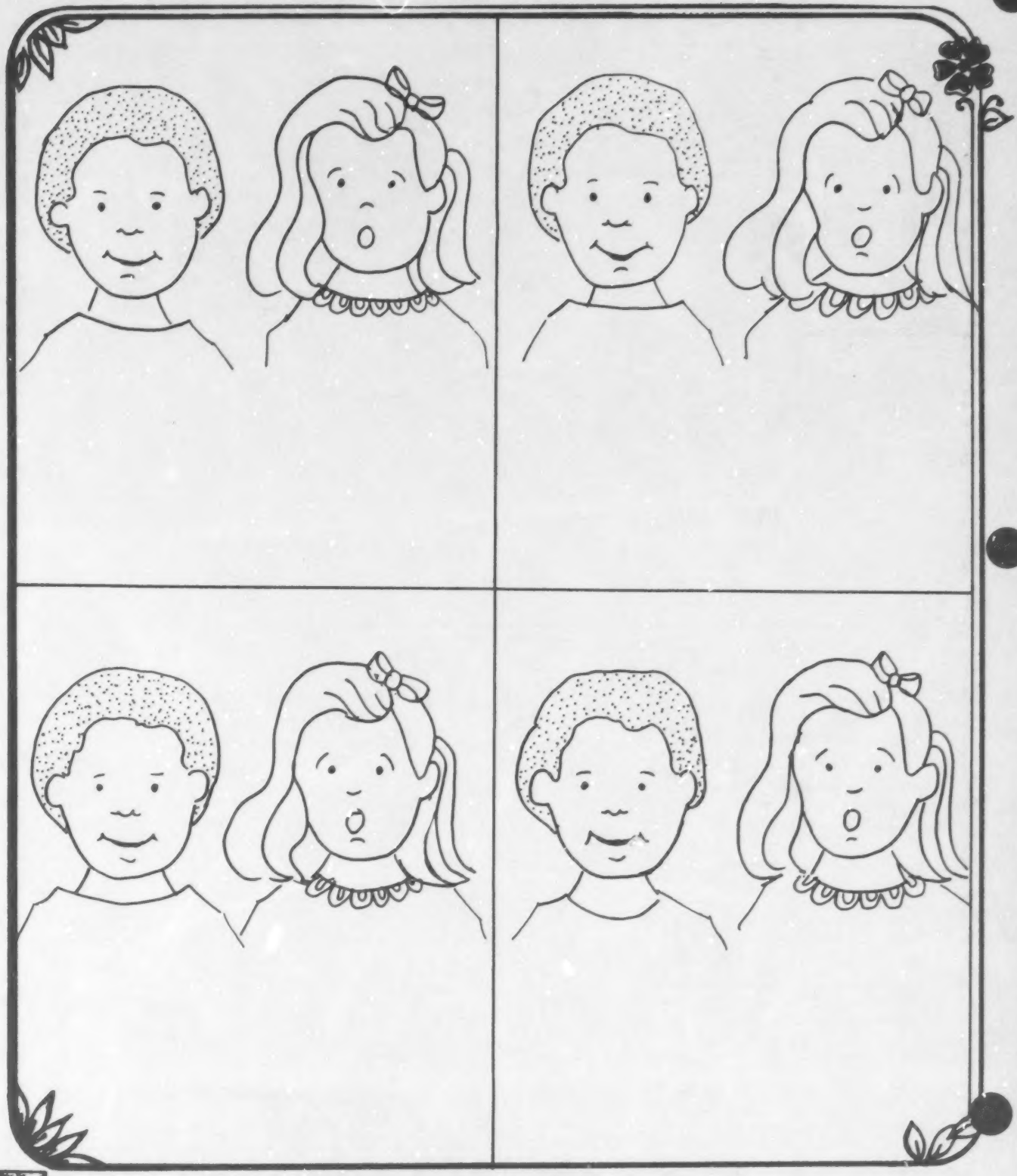
Do all animals live in a zoo?
Do all pupils go to school on Saturday?
Is the sun always in the sky?
Will you get wet if you step in a puddle?



P.O. 0.12.03.01

NAME: _____ CLASS: ____

Listen to the statement.
If it is certain, color Sammy Certain.
If it is uncertain, color Ursula Uncertain.



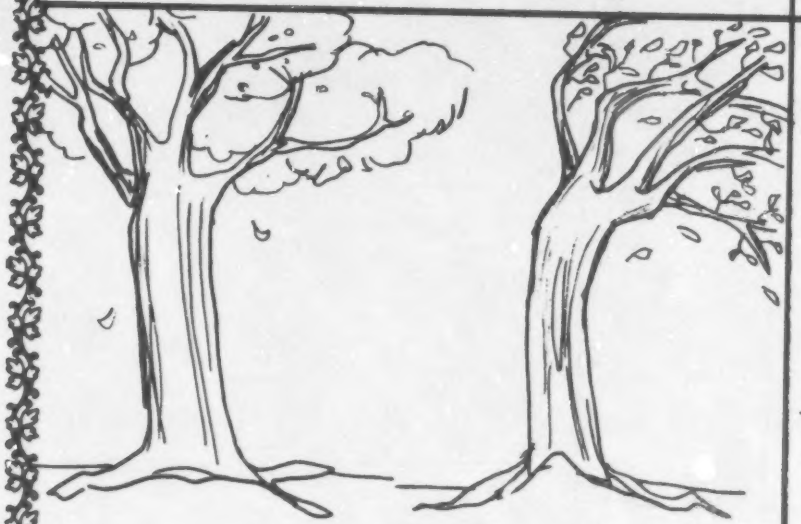
P.O. 0.12.03.02

NAME: _____ CLASS: _____

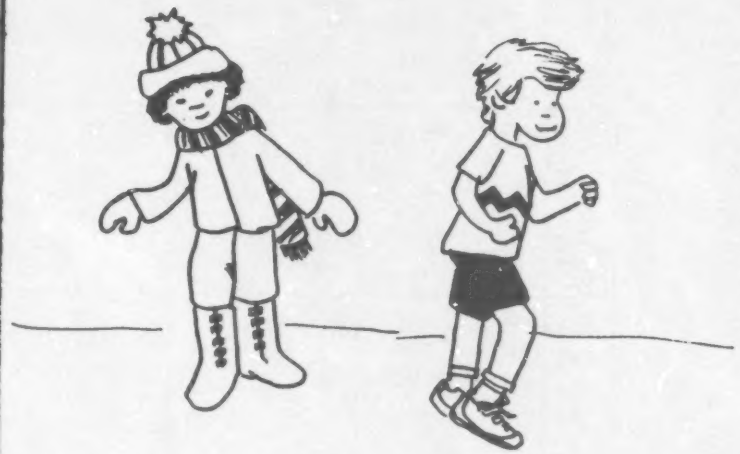
Circle the picture in each box that shows what is more likely to happen.

When a plant is watered.

When you are sleepy.



When the wind blows hard.



When the sun is very hot.

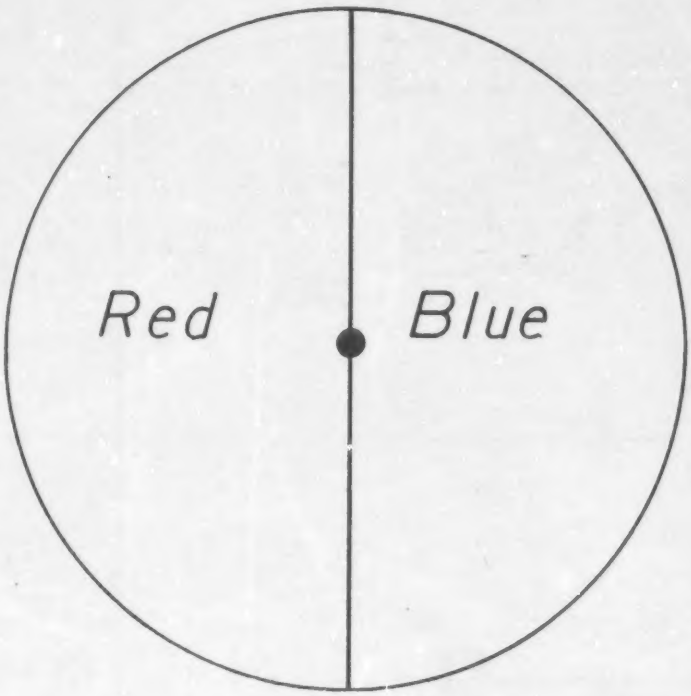
- 45c -

P.O. 0.12.03.03

NAME:_____ CLASS:_____

Cut out the spinner and mount it on a hard surface.
Choose the color on which you guess the spinner will land. Place an X in the Guess column using that color crayon. After spinning, place an X in the Result column to show the color on which the spinner landed.

Guess	Result



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Unit 42

0.06.01 A WHOLE UNIT

(3 lessons)

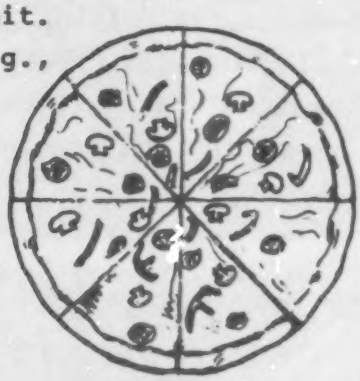
PERFORMANCE OBJECTIVES

The student will be able to...

0.06.01.01 identify an object as a unit when so considered;
e.g.,

0.06.01.02 identify a part of a whole;
e.g.,

0.06.01.03 distinguish part of a unit from the whole unit.
e.g.,



0.06.01

VOCABULARY

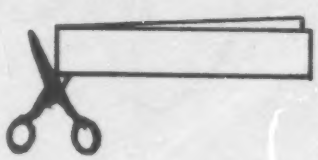
TERMS

share
same
different
part
equal
whole
equally

GETTING STARTED

Display a picture of a pizza or show a pizza made out of construction paper. Say, "Two youngsters want to share this pizza equally. How should they share the pizza?" Ask different students to demonstrate sharing the pizza equally. Repeat this procedure using other models, e.g. pies, cupcakes.

Prepare strips of adding machine tape. Each strip has to be shared equally between two students. Say, "Hold the two ends together and fold the strip the middle, cut the strip at the middle. The parts are equal."
e.g.,



NOTE: Whole units can be separated into equal parts using one of three methods, e.g., folding, measuring, or approximating visually. Students can check to see if the parts are equal by using these methods: fitting one part on top of another (pies) or comparing the lengths of each part (string).

0.06.01

0.06.01.01 identify an object as a unit when so considered

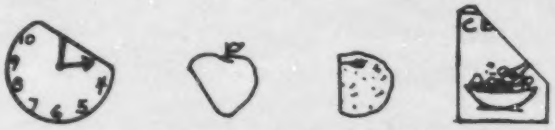
STRATEGY 1: Prepare a variety of fruit for fruit salad, e.g., pear, apple, banana and orange. Point to the banana and say, "This is a whole banana." Repeat for the other fruits. Say, "We will cut the whole banana into smaller parts for our fruit salad. (Demonstrate) The whole banana is all of the banana." Repeat this with the other fruit until your fruit salad is completed.

STRATEGY 2: Prepare and display two pictures each of familiar objects, e.g., clocks, apples, oranges, cereal boxes, etc. Leave one picture of each whole.

e.g.,

Cut a piece off of each of the other pictures.

e.g.,



Display the picture of the whole clock and the picture of the clock with a piece missing. Say, "Which of these pictures shows a whole clock?" Ask a student to tape the picture of the whole clock on the chalkboard. Point to the picture of the whole clock and say, "This whole clock is a unit because it is one complete clock." Repeat this procedure with the pictures of other items.

0.06.01.02 identify a part of a whole

STRATEGY 1: Prepare several wooden puzzles having no more than three pieces each. Remove one piece from each puzzle and hold them aside. Place one puzzle with the frame and its remaining pieces on the

STRATEGY 1: cont'd

chalkboard ledge, taping the pieces in if necessary. Display the missing part of the puzzle and a part from one of the other puzzles. Say, "Which of these is a part of the puzzle on the chalkboard ledge? How do you know?" Ask a student to place the correct part into the puzzle. Say, "Now we have a whole puzzle since we put in the part that was missing."

Repeat this procedure with the other puzzles.

STRATEGY 2: Prepare pictures of simple familiar objects with a part missing from each and cards with those missing parts. Distribute the incomplete cards to the students. Place several different parts on a tray from which the students can choose parts to complete their pictures. Say, "Who can pick out the part that completes his/her picture? Why is it necessary to have this piece with the picture?" (The correct piece will give us a complete picture or a whole picture.)

Repeat this procedure by having the students exchange pictures.

0.06.01.03 distinguish part of a unit from the whole unit

STRATEGY 1: Prepare a circle, rectangle and triangle. Cut each shape into two unequal parts and mix up the parts. Show students part of one shape and say, "What is missing?" (The other part)

Distribute the parts of the shapes to the students. Say, "Who would like to show his/her shape to us? Who has the other part of that shape?" Ask the two students to hold the shapes together so that everyone can see the whole shape.

0.06.01

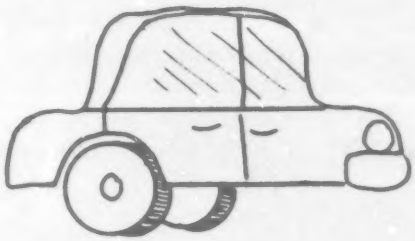
STRATEGY 2: Prepare a flannel board and a set of flannel shapes, some whole and some cut in half. Display some whole shapes on the flannel board. Place the rest of the whole shapes and the shapes cut in half in a box. Say, "Pick a shape from the box and match it to the shapes on the flannel board. Did you pick a whole shape or only part of a shape? How can you tell?"

Repeat this procedure by allowing students to work independently.

P.O. 0.06.01.01

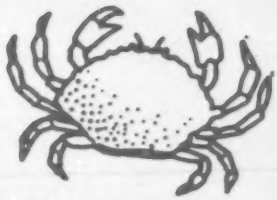
NAME: _____ CLASS: _____

Color the pictures that show whole objects.

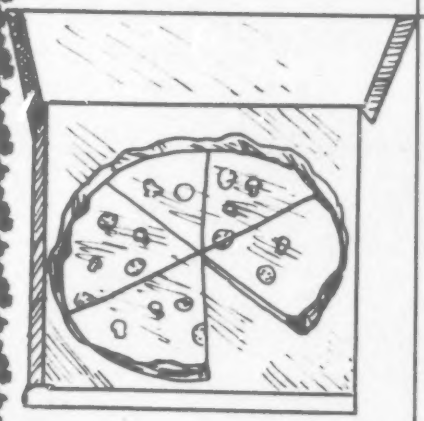


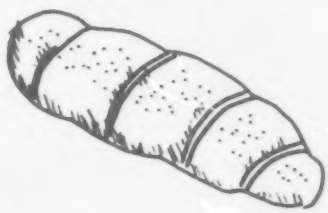
P.O. 0.06.01.01

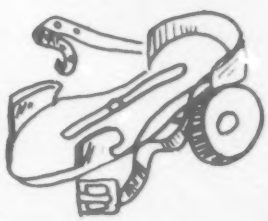
NAME: _____ CLASS: _____



Draw a ring around all the whole objects.



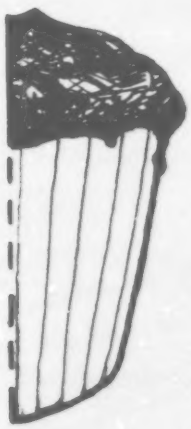


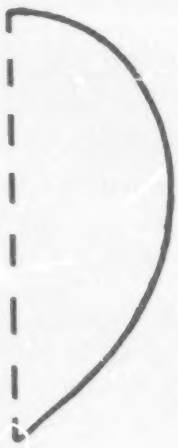


P.O. 0.06.01.02

NAME: _____ CLASS: _____

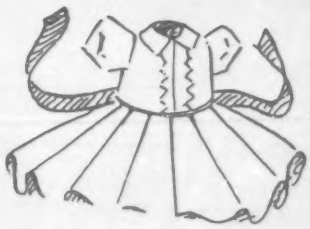
Cut out the bottom shapes and paste them to the top shapes to make a whole.



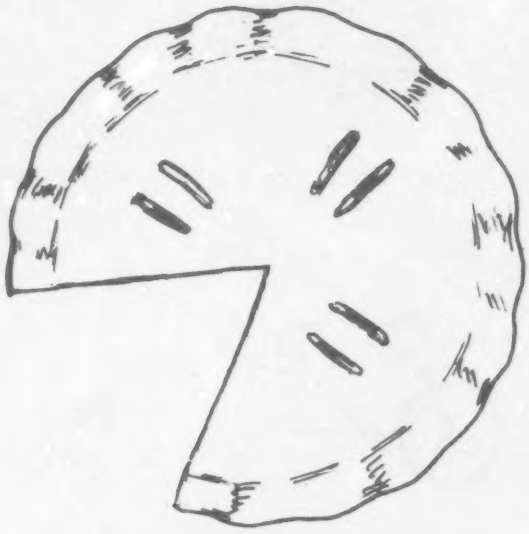


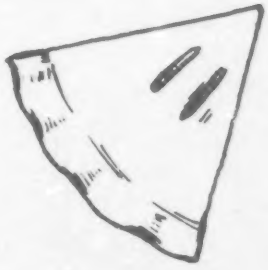
P.O. 0.06.01.02

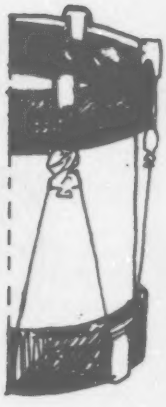
NAME: _____ CLASS: _____



Cut the parts.
Match the parts to make a whole.



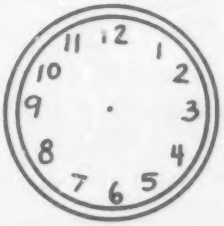




P.O. 0.06.01.03

NAME:_____ CLASS:_____

Draw a line to the part that will make the picture whole.
Color the part.



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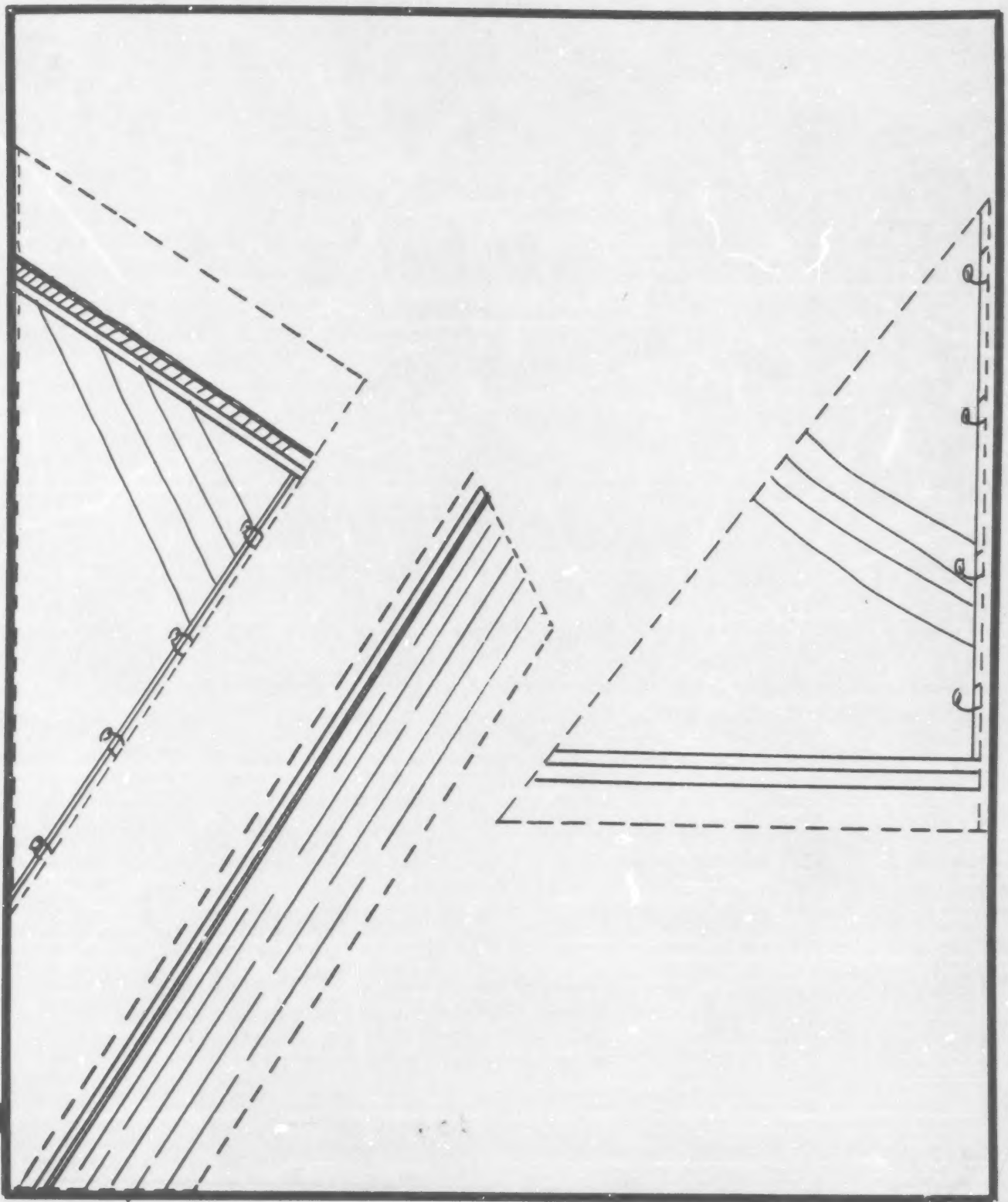
P.O. 0.06.01.03

NAME: _____ CLASS: _____

Make a whole sailboat. Cut out the parts and paste them in the whole sailboat outline.



P.O. 0.06.01.03

NAME: _____ CLASS: _____

Paste sailboat parts here.

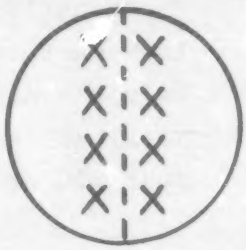
0.06.02 SHARE OBJECTS

(2 lessons)

PERFORMANCE OBJECTIVES

The student will be able to...

0.06.02.01 recognize that when a group is separated into two parts of the same size, each part is $\frac{1}{2}$ of the whole group;
e.g.,



0.06.02.02 solve oral story problems related to skills learned in this module.
e.g.,

Melissa has cubes. She wants to share them with a friend. Melissa makes two piles on paper plates. The piles are the same. The total number of cubes remains the same after they are shared.

0.06.02

VOCABULARY

TERMS

one-half
share

GETTING STARTED

Distribute one cupcake to every two pupils. Dramatize this rhyme.

Here's a cupcake.
Let's cut it in two.
One part's for me.
The other's for you.
Each part is the same,
As you can see.
We'll share our cake,
Just YOU and ME!

Prepare sheets of paper and containers filled with rice. Distribute one container and a sheet of paper to each student. Ask the students to make a heap of rice on their papers. Say, "Separate your heap of rice into two heaps of the same size. How did Carla make two heaps? With what did she start? Are the two heaps about the same size? If Carla pushes the two heaps together, what will she have? Which is bigger, each one of Carla's heaps or the heap with which she started?"

Repeat this procedure with each of the students.

0.06.02

0.06.02.01 **recognize that when a group is separated into two parts of the same size, each part is $\frac{1}{2}$ of the whole group**

STRATEGY 1: Prepare boxes of beans and several empty containers. Place a container of beans and two empty containers of the same size on each table. Say, "Every time we put a bean into one container, we must put a bean into the other container." Pass the containers around the table so that each student has at least one chance to participate and the box of beans is empty. Say, "Each container has the same amount. Each container holds one-half of the whole group." Place these materials in your math corner to allow students to do this activity independently.

Repeat this procedure using other materials.

STRATEGY 2: Prepare cards numbered 2, 4, 6 and 8. Prepare and distribute to each student six discs and an oaktag card folded down the center. Say, "Place your discs at the top of your desk. Our card has already been divided into halves; now we will separate the discs into two groups, each having the same number."

Display the numeral 2 card and say, "Take this number of discs from your group. Place these discs on the card so that each side of the card will have the same number of discs. How many discs have you put on each side of your card? Does each side have the same number of discs? Each side has one-half of the discs." Repeat this procedure using the other numeral cards and discs.

e.g.,

0.06.02

0.06.02.02 **solve oral story problems related to skills learned in this module**

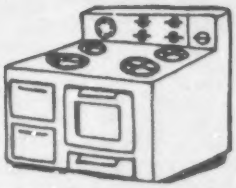
STRATEGY 1: Prepare snack items, e.g., raisins, cookies, peanuts. Say, "Mary went to Lora's house after school. Lora's mother gave them six cookies to share. Who can show us how they would share these cookies? (Demonstrate) Each girl has one-half of the group of cookies."

Repeat this procedure using other snack items and stories.

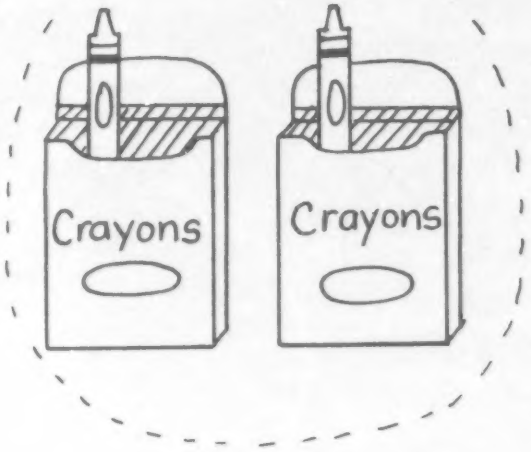
STRATEGY 2: Prepare eight crayons for each pair of students. Say, "How will you share these crayons so that each student gets one-half of the crayons? Let's share them now. Did each of you get one-half of the group of crayons?" Ask the students to match their crayons with their partner's crayons to check.

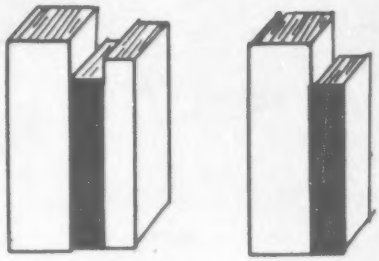
P.O. 0.06.02.01

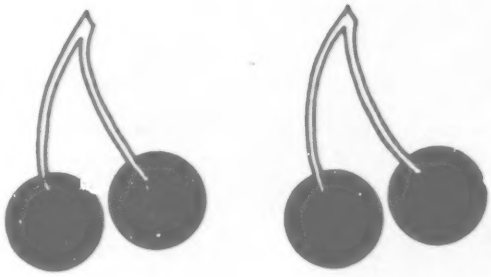
NAME: _____ CLASS: _____

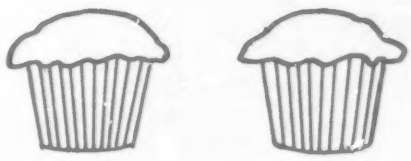


Circle the pictures that can be shared equally.





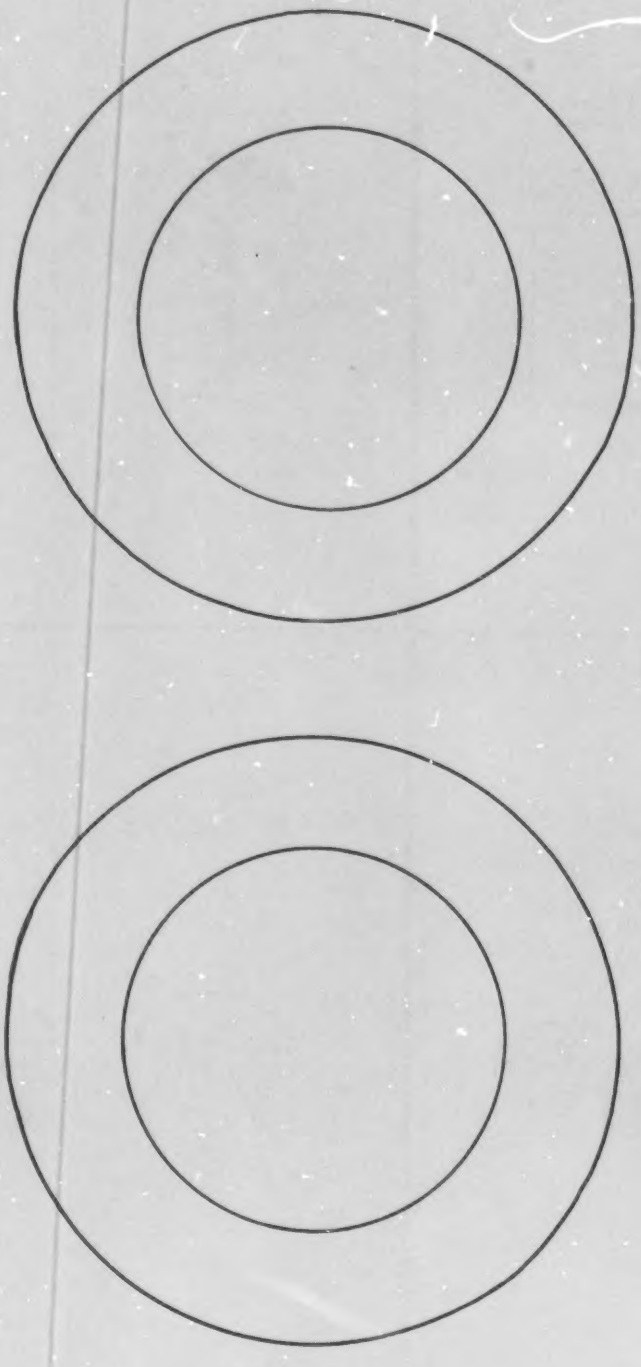


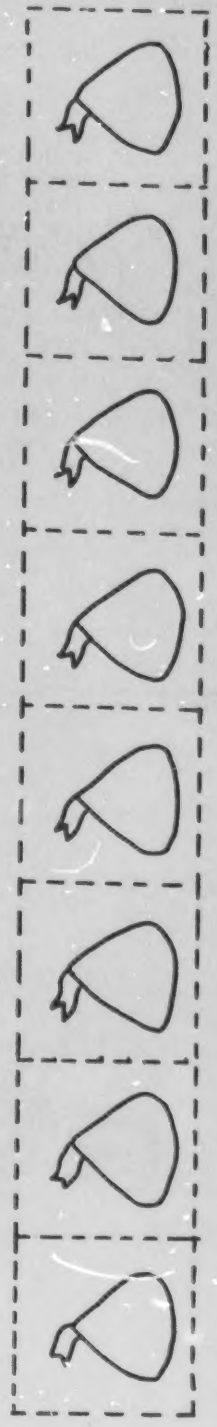


P.O. 0:06.02.01

NAME: _____ CLASS: _____

Cut out the candy. Paste them on the plates so each plate has one-half of the candy.





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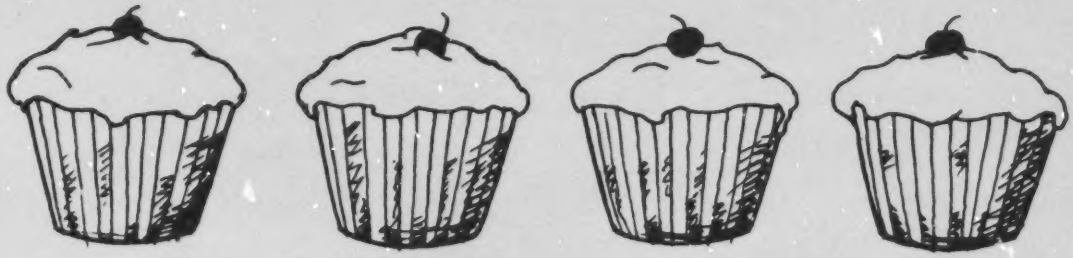
P.O. 0.06.02.02

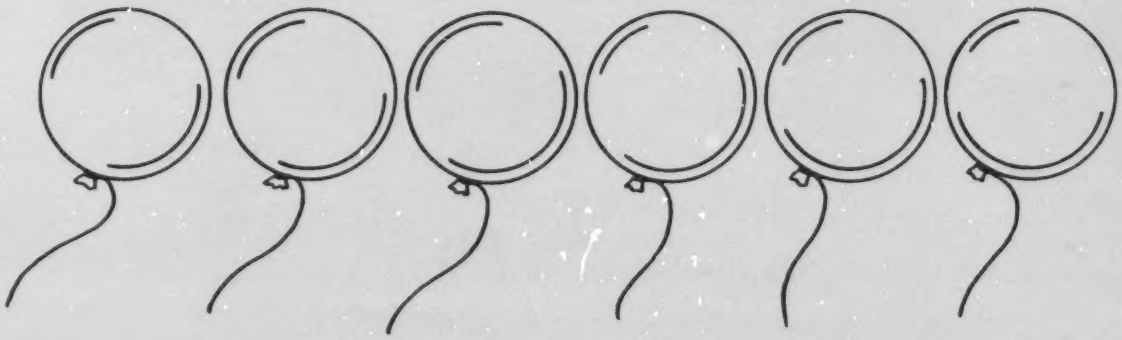
NAME:_____ CLASS:_____

Read word problems to pupils.

1. Paul had four cupcakes. Ben came to play with him. He wanted to share the cupcakes. Show how he shared his cupcakes. Color Paul's share brown and Ben's share yellow.



2. Jane's mother gave her 6 balloons to share with Nan. Color the number of balloons Jane will get with a red crayon. Color the number of balloons Nan will get with a green crayon.



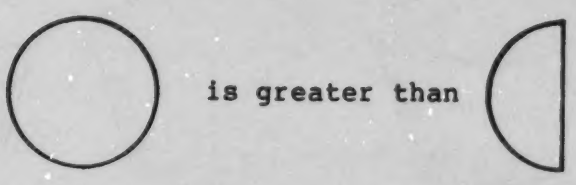
0.06.03 COMPARE A HALF UNIT TO A WHOLE UNIT

(2-3 lessons)

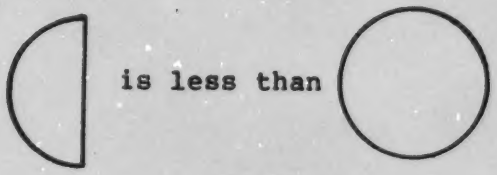
PERFORMANCE OBJECTIVES

The student will be able to...

0.06.03.01 recognize that a whole object is greater than one-half ($\frac{1}{2}$) of the object;
e.g,



0.06.03.02 recognize that one-half ($\frac{1}{2}$) of an object is less than a whole.
e.g.,



0.06.03

VOCABULARY

TERMS

half
greater than
less than
more than
equal to

GETTING STARTED

Prepare and distribute either a whole or a half log pretzel to each student. Say, "If you have a half pretzel, stand. If you have a whole pretzel, stay seated." Ask the students with half pretzels to find a matching piece from the bag of extras.

Prepare and distribute scissors and oaktag cutouts of fruit. Ask the students to cut the fruit into halves. Place all the parts in a pile on the table. Say, "Choose one puzzle part. Find the matching part to complete the picture of the fruit."

0.06.03

0.06.03.01 **recognize that a whole object is greater than one-half ($\frac{1}{2}$) of the object**

STRATEGY 1: Prepare and distribute two pieces of construction paper and scissors to each student. Say, "Fold one sheet of paper down the middle. Carefully cut along the fold line." Demonstrate. Hold up one-half in one hand and the whole sheet in the other hand. Say, "Which is greater, the half sheet or the whole sheet? Measure your half sheet of paper against your whole sheet of paper to check your answer. Why is the whole sheet greater?" (The two halves are parts of the whole. When placed on top of the whole, they are equal.)

STRATEGY 2: Prepare enough whole apples so that each student may have half an apple at the end of the lesson. Display a whole apple. Cut a second apple in half. Ask the students to compare the whole apple with one-half of an apple. Say, "Which is greater? The whole apple is greater than half an apple." Slice the remainder of the apples in half and distribute them. Continue discussing how a whole object is greater than one-half of the object. The half apples may be eaten at snack time.

0.06.03

0.06.03.02 recognize that one-half ($\frac{1}{2}$) of an object is less than a whole

STRATEGY 1: Prepare graham crackers which have <u>not</u> been separated at the center breakline. Carefully break a cracker in half at the center breakline. Give the halves to two students. Hold up another whole cracker. Say, "Who has less than I have? That's right, Nick and Nora each have less because I have a whole cracker. If Nick and Nora each put their halves together, it will equal a whole." Give half of the class a whole cracker. Say to those students, "Carefully break your cracker along the breakline. Give one half to your partner. Each of you may eat your half."

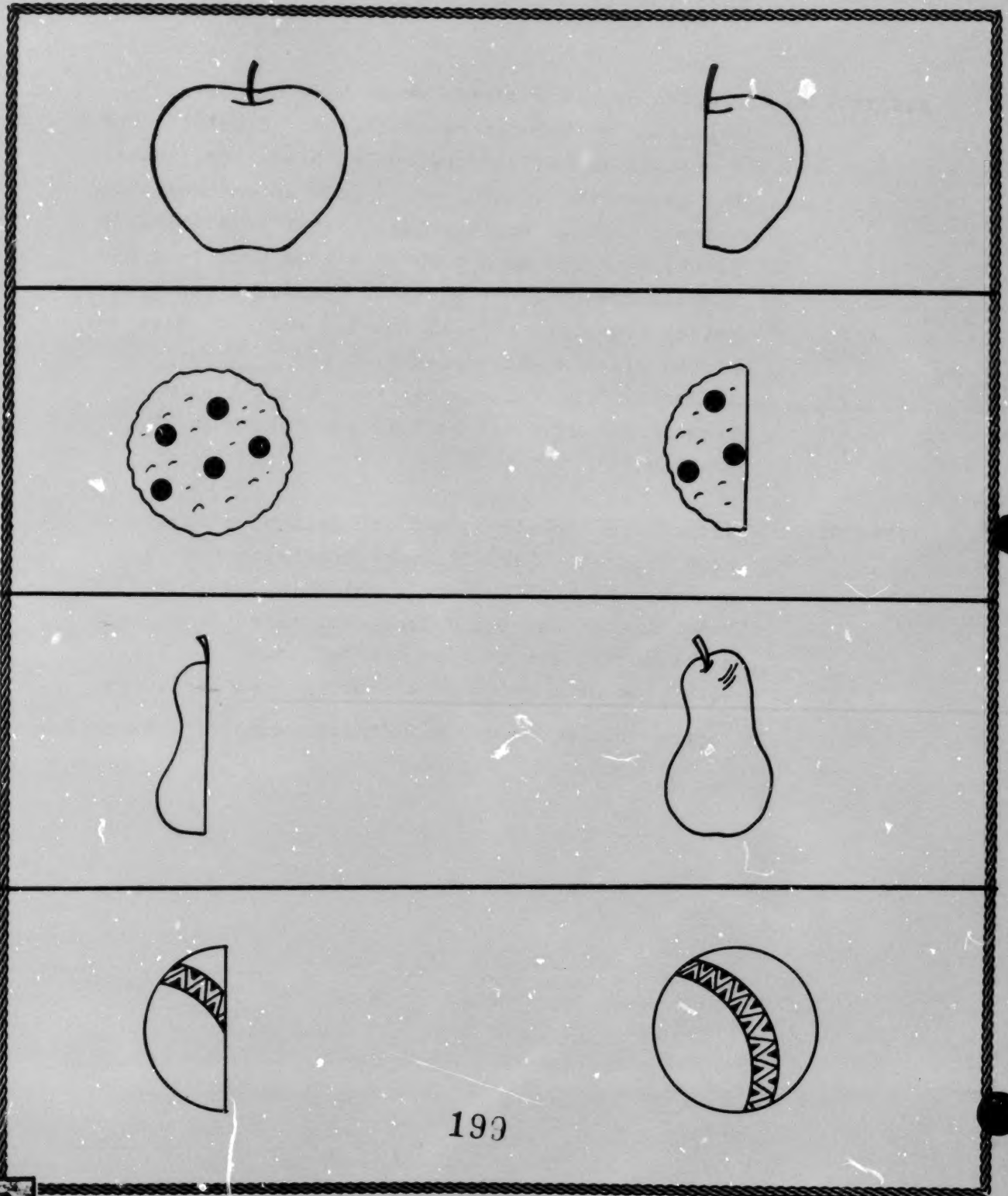
STRATEGY 2: Distribute a whole square and half of a square to each student. Say, "Measure the half of a square against the whole square. Which is less?" Demonstrate that two halves will make the whole. Ask each student to join his/her half of a square with that of a neighbor to make one whole square.

Repeat this procedure with other geometric shapes.

P.O. 0.06.03.01

NAME: _____ CLASS: _____

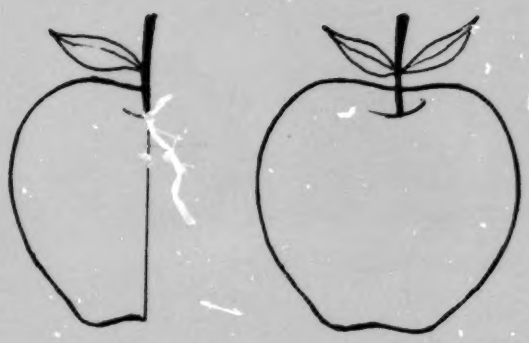
Circle the object which is greater.
Why is it greater?

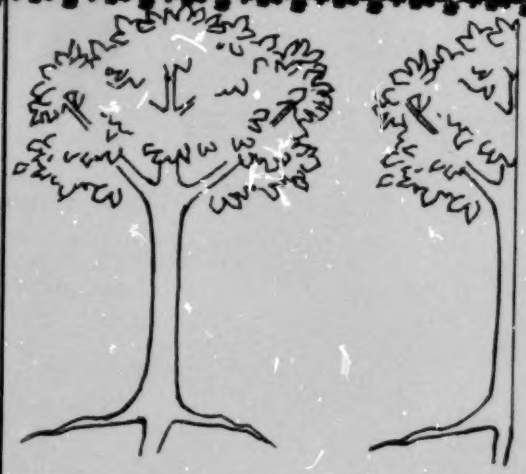


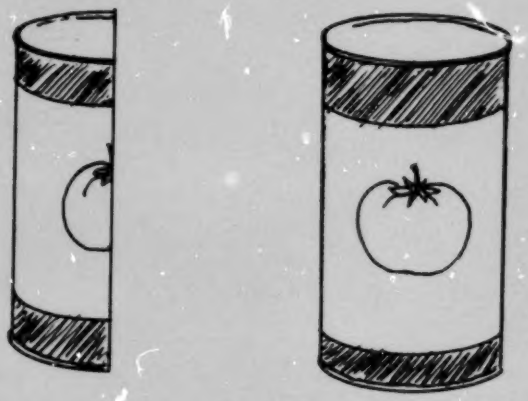
P.O. 0.06.03.02

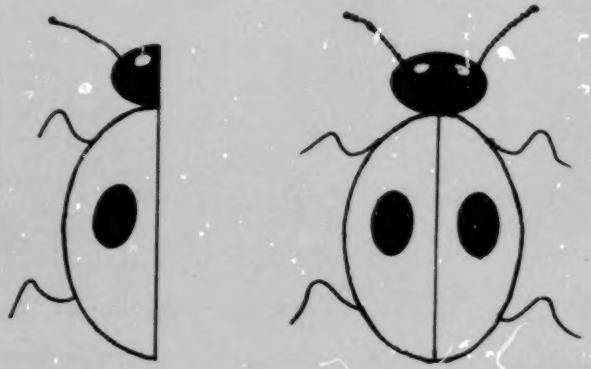
NAME: _____ CLASS: _____

In each box, place an X on the picture that is less than a whole.









0.06.04 THE FRACTION ONE-HALF $(\frac{1}{2})$

(3-5 lessons)

PERFORMANCE OBJECTIVES

The student will be able to...

0.06.04.01 recognize equal parts of a whole;
e.g.,

0.06.04.02 recognize that when an object is separated into two (2) pieces of the same size, each piece is one-half $(\frac{1}{2})$ of the whole object;
e.g.,

0.06.04.03 divide representative objects into halves;
e.g.,

0.06.04.04 solve oral story problems related to skills learned in this module.
e.g.,

If two boys wish to share equal parts of a sandwich, what must they do to the sandwich?

Divide the sandwich into two equal parts.

0.06.04

VOCABULARY

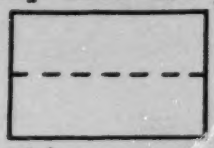
TERMS

whole
equal - unequal
part
same
half - halves
object

GETTING STARTED

Prepare four pictures of the same rectangular cake and a marking pen. Tell the following story: "Delores and her friend, Amanda, decided to bake a chocolate cake. They followed the recipe very carefully and after measuring, mixing and baking, they took the cake from the oven and let it cool. They wanted to share the cake equally." Display a picture of a cake and say, "How can the cake be cut so that Delores and Amanda each get the same amount?" Ask a student to draw a line on the pictures to show how the cake could be cut equally into two parts.

e.g.,



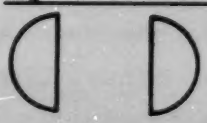
Continue this procedure with the other two cakes making different cuts.

e.g.,

Display several flannel geometric shapes. Cut some of the shapes in half and cut some into two unequal pieces. Say, "We are going to separate the shapes into two groups: those cut into two equal pieces and those cut into two unequal pieces."

e.g.,

Equal Pieces



Unequal Pieces

Repeat this procedure using the other shapes.

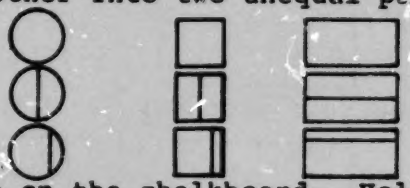
0.06.04

0.06.04.01 recognize equal parts of a whole

STRATEGY 1: Prepare and distribute equal lengths of ribbon or yarn, scissors and the same size block to each group of two students. Say, "Pretend you are going to a birthday party. You each need ribbon to wrap a birthday present that is the size of this block. Can each of you wrap a present? Why not? (Some of us don't have a ribbon.) How can you share the ribbon so you and your partner have the same amount? How can we check to see that each person receives his/her fair share?" (Match the pieces) Ask a student to demonstrate. Say, "Now there are two equal lengths of ribbon."

STRATEGY 2: Prepare three equal-sized circles, three equal-sized squares and three equal-sized rectangles made from construction paper. Leave one of each shape whole. Cut one of each of the shapes into two equal parts and the other into two unequal parts. e.g.,

(whole)
(equal parts)
(unequal parts)



Tape the whole circle on the chalkboard. Hold up the two unequal parts of the circle so as to form a circle. Say, "These two parts can fit together to make a circle that looks like the circle on the chalkboard. What can you tell us about the size of each part?" (One is bigger than the other, etc.) Next hold up the two equal parts so as to form a circle. Say, "These two parts can be used to form a circle also. What can you tell us about the size of each part? (They are the same size.) How can we show that both pieces are the same size?" (by placing one on top of the other) Ask a student to tape the two equal parts together on the chalkboard to form a circle.

0.06.04

STRATEGY 2: cont'd — Repeat this procedure with the square and the rectangle.

0.06.04.02 **recognize that when an object is separated into two (2) pieces of the same size, each piece is one-half ($\frac{1}{2}$) of the whole object**

STRATEGY 1: Prepare a paper plate for each student. Display one paper plate and say, "I am going to fold and cut this plate into two equal parts. We can check to see if the two parts are equal by placing one piece on top of the other." Distribute a plate to each student. Say, "Fold and then cut your plate into two equal pieces. Tell us if you have two equal parts. How can you show that they are or are not equal parts? (Match the pieces.) We cut one plate into two equal pieces. Each piece is called one-half of the whole. Hold up one-half. Hold up the other half."

STRATEGY 2: Cut out large symmetrical shapes and/or pictures. Cut each shape/picture into two equal parts.

Tell the story of "Humpty-Dumpty." Emphasize that Humpty-Dumpty broke into so many pieces he couldn't be put together again. Display the pictures in a random arrangement. Ask the students to match the pieces. Hold the two pieces together so that they show a whole. Say, "We cut the picture into two equal pieces. Each piece is called one-half."

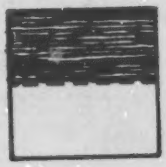
Put the pictures out as matched sets. Ask the student to find one-half of a particular picture, e.g., one-half of the star.

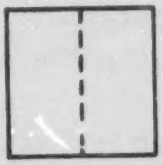
0.06.04

0.06.04.03 divide representative objects into halves

STRATEGY 1: Prepare and distribute three square sheets of paper to each student. Demonstrate as you say, "Fold one of your squares so that there will be two halves. Color one-half of the square. Can you divide your other squares into two halves in other ways?" Elicit responses that show pupils can divide their squares in different ways.

e.g.,





STRATEGY 2: Prepare various size rectangles. Distribute two rectangles to each student. Demonstrate as you say, "Divide your rectangle into two halves. Color one-half of the rectangle. Can you divide your other rectangle into halves in a different way?"

e.g.,

0.06.04.04 solve oral story problems related to skills learned in this module

STRATEGY 1: Prepare a jump rope. Display the jump rope and say, "Doris bought a new jump rope. It was much too long. She decided to share the jump rope with her friend Robert. How can she share this jump rope equally so that she and Robert each get a half?" (Fold the rope in half and cut it.)

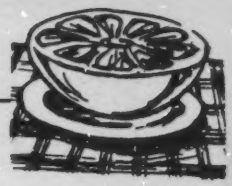
STRATEGY 2: Prepare an experience chart paper divided in half, a marking pen and the following items: a can of juice, a cookie, a record, an apple, a book, a package of paper, a hat, a shirt. Say, "Look at these items. We will sort them into two different piles. One pile will be items you can cut or separate into two equal parts and share with a friend. Let's find those items and place them here." List items on an experience chart. Say, "Now let's name the items you cannot share with a friend." List these items on the experience chart. Ask students why these items cannot be shared with a friend. Ask students to name other items that can be shared equally with a friend.

e.g.,

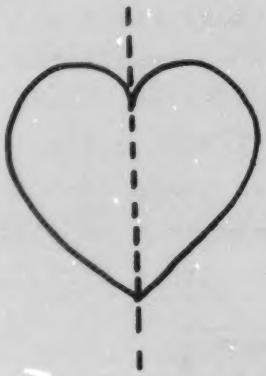
CAN SHARE	CANNOT SHARE
pie	record
juice	book
apple	hat
paper	shirt

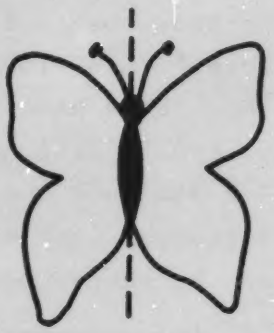
P.O. 0.06.04.01

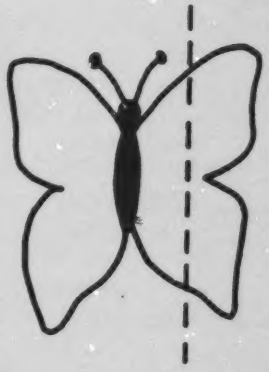
NAME: _____ CLASS: _____

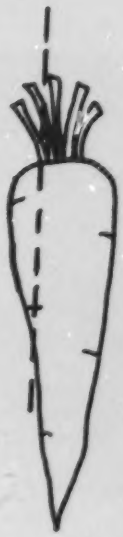


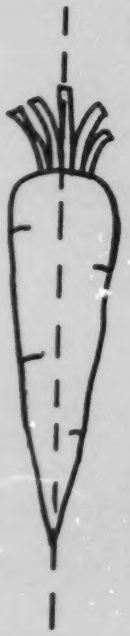
Circle the shapes which show two equal parts.
Color one-half of each of the shapes you circled.







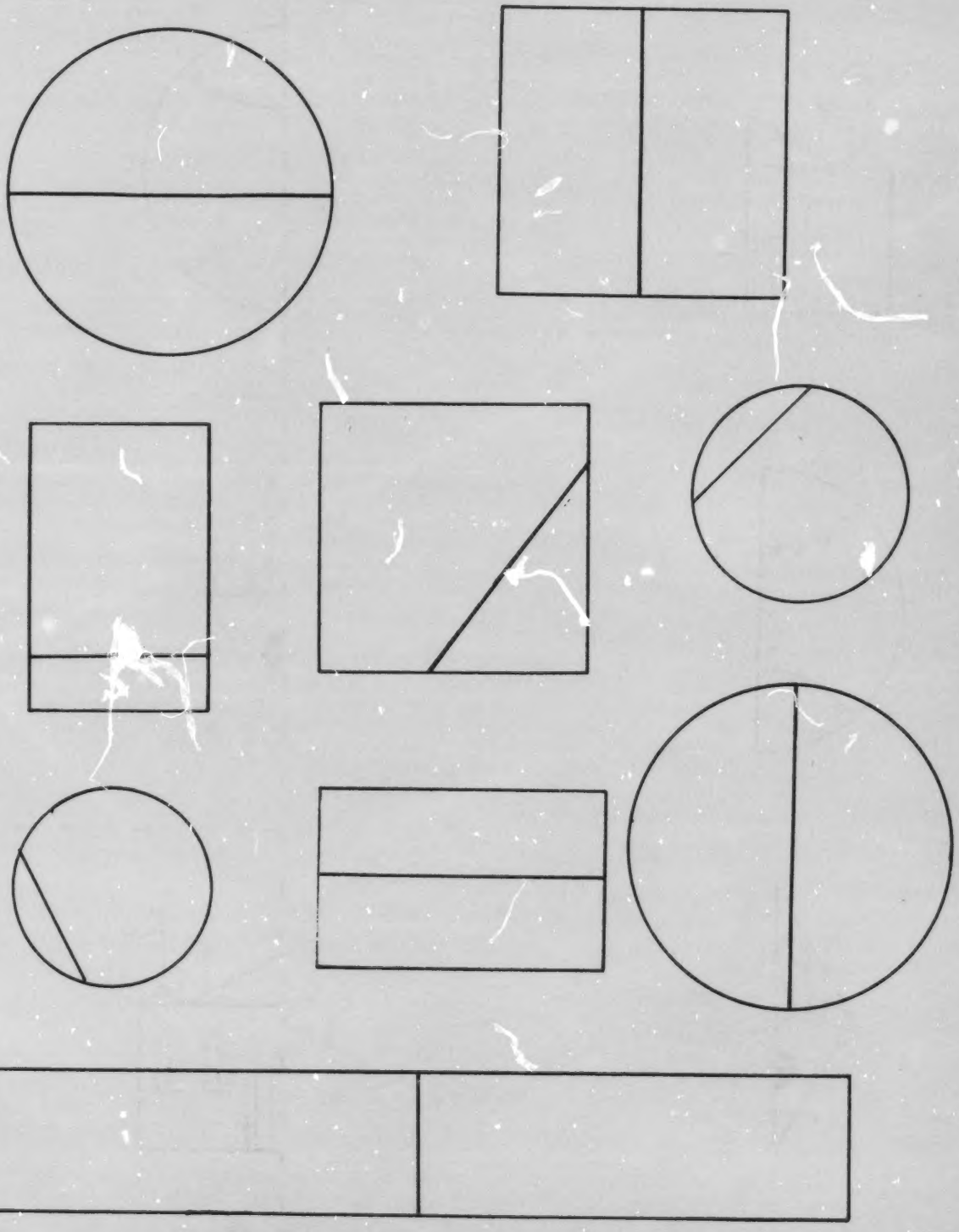




P.O. 0.06.04.01

NAME: _____ CLASS: _____

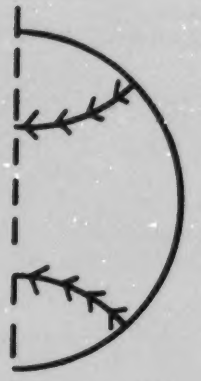
Find the shapes which have 2 equal parts.
Color one half of those shapes.

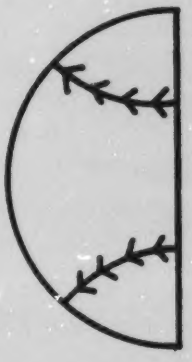


P.O. 0.06.04.02

NAME: _____ CLASS: _____

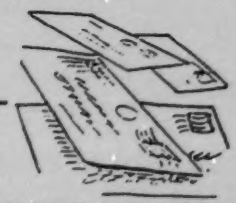
Cut along the dotted lines.
Match the halves to make a whole picture.
Paste them together.





P.O. 0.06.04.02

NAME: _____ CLASS: _____

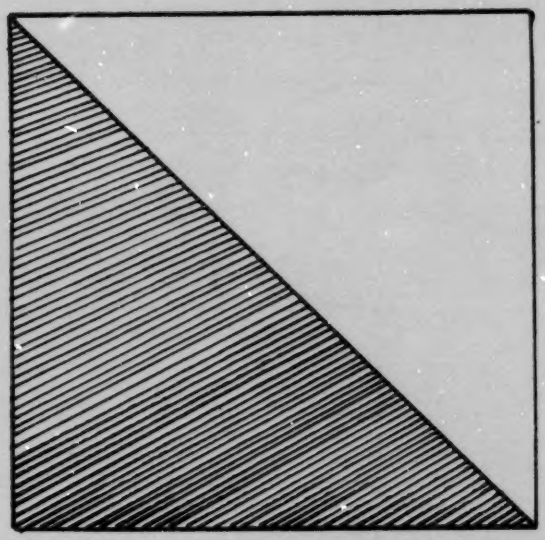


Cut along the dotted lines.
Match the halves to make a whole picture.
Paste them together.

P.O. 0.06.04.03

NAME:_____ CLASS:_____

Divide each square into halves in different ways.
Color half of each square.



P.O. 0.06.04.04

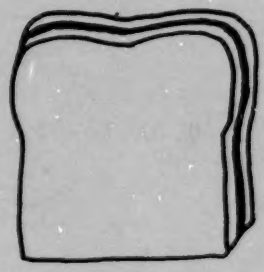
NAME: _____ CLASS: _____

Read word problems to students.

Mark wants to share his pizza equally with his friend. What must he do to the pizza? Do it with your crayon.

Two girls wish to share the cupcake. Use your crayon to show what they must do to the cupcake.

John is crying because he wants his sister to share her sandwich with him. Cut the sandwich so that he will receive an equal part.



Alan does not have a snack today. Give him half of Steven's snack.

0.01.16 CONSTRUCT AND COUNT USING A NUMBER LINE

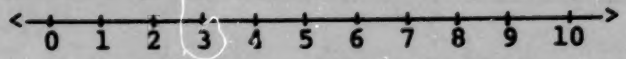
(3-4 lessons)

PERFORMANCE OBJECTIVES

The student will be able to...

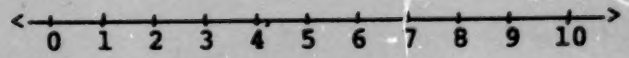
0.01.16.01 construct a number line;

e.g.,



0.01.16.02 count forward and backward on the number line;

e.g.,

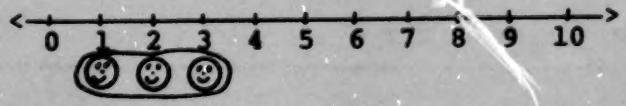


——————> forward

<—————— backward

0.01.16.03 compare the cardinal number of a set of concrete objects by matching them with the numbers on a number line.

e.g.,



The last number in the one-to-one correspondence is the number of objects in the set.

0.01.16

VOCABULARY

TERMS	SYMBOLS	TERMS	SYMBOLS	TERMS
zero	0	six	6	number line
one	1	seven	7	forward
two	2	eight	8	backward
three	3	nine	9	
four	4	ten	10	
five	5			

GETTING STARTED

Prepare large cards numbered 0 through 10. Randomly place the cards on the chalkboard ledge. Say, "Let's read these numerals in the order in which they are placed on the ledge. (3, 5, 8, 2...) Are these in counting order? (No) Let's put the numerals in order. What numeral should go first?" (0) Ask a student to place the zero on the chalkboard ledge in the first position. Say, "What numeral comes next?" Ask another student to place the card with the numeral one next in line. Continue this procedure until all the numbers have been properly ordered.

Prepare footprints cut from newspaper or construction paper. Label the footprints 0 through 10. Spread the footprints over a large area so that students can play "Running Feet". Say, "Step on the footprint labeled zero. Where do you think you will step next?" Ask a pupil to place his/her foot on the footprint marked zero and then move on to footprint one. Repeat this procedure until footprint ten is reached.

0.01.16

0.01.16.01 construct a number line

STRATEGY 1: Prepare a ten foot piece of masking tape. Tape it on the floor in a straight line. Mark off each foot.

Say, "We are going to make a number line using the tape on the floor. Our number line begins with zero. Who would like to be zero?" Ask a student to take the card labeled zero and stand on the left edge of the tape. Say, "What number comes next?" Ask a student to find the numeral card 1 and stand on the next line. Continue this procedure until there is a student standing on each line for numerals zero through ten.

STRATEGY 2: Prepare large construction paper, small cards numbered 0 through 10 and paste. Mark each paper with dots spaced about three inches apart. Mark the dot farthest to the left 0.
e.g.,

. . . . . .
0

Distribute the cards and papers to each student. Say, "We are going to make a number line. Look at your paper. What number do you see written under the first dot? (0) Find the cards with the zero and place it on your paper under the zero. Find the numeral one card. Find the dot after the zero dot and write the numeral one under the dot. Paste the numeral one card under the numeral 1."
e.g.,

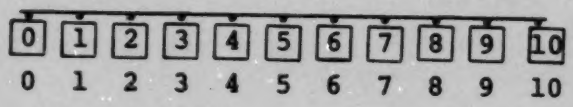
. .
[0] [1]
0 1

Repeat this procedure through the numeral ten.

STRATEGY 2: cont'd

Say, "Now we will attach the dots by drawing lines from one dot to another. We have made a number line."

e.g.,



0.01.16.02 count forward and backward on the number line

STRATEGY 1: Teach students the song, Ten in a Bed.

There were ten in a bed.
And the little one said, "Rollover, rollover,"
So they all rolled over and one fell out...

Repeat this verse counting backward to zero.

Prepare large oaktag cards numbered zero through ten. Ask eleven students to stand in front of the classroom, holding the numeral cards in counting order. Say, "We will sing the song, Ten in a Bed. Look at your number card. When you hear your number, put your card down in front of you. When we reach zero, everyone will shout, 'Wake up!" After the song is completed, there will be a number line on the floor. Ask different students to walk this number line counting forward and backward.

STRATEGY 2: Prepare and distribute to each pair of students, sets of cards, numbered 0 through 10, and a sentence strip with eleven paper clips inserted at evenly spaced intervals. Say, "We are going to count, using our number lines. You will take turns placing the numerals along the number line. Which numeral should we clip on the first position?" (0) Continue this procedure until every numeral has been placed. Ask the students to point to the numerals as they say them in correct counting order.

STRATEGY 2: cont'd

Say, "Now, put your finger on the number ten. We are going to start at ten and count backward. We will remove the numeral cards as we count backward."

0.01.16.03 **compare the cardinal number of a set of concrete objects by matching them with the numbers on a number line**

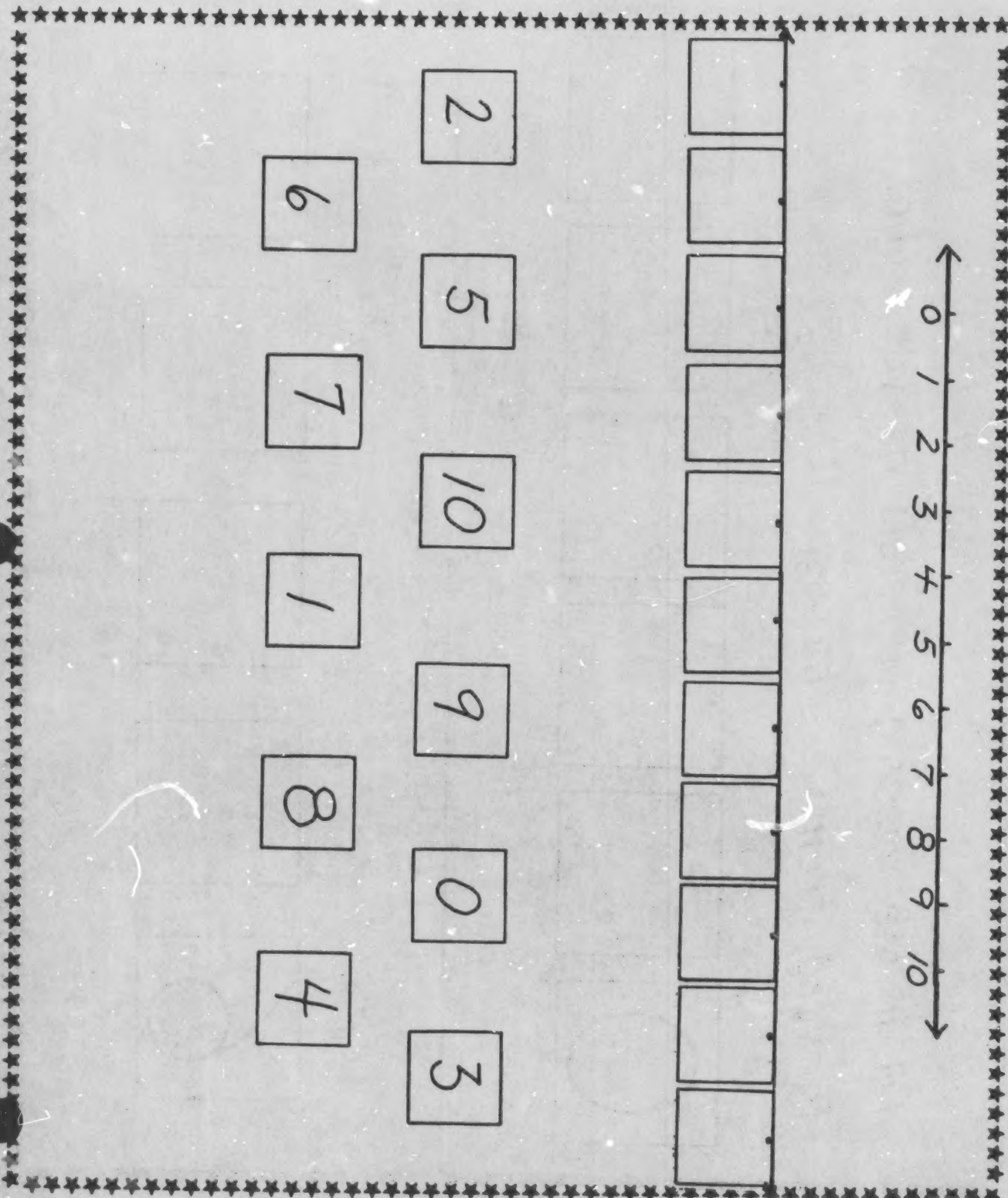
STRATEGY 1: Prepare and display a variety of small objects for counting, e.g., one scissor, two pennies, three crayons, four straws... and a large number line on the floor. Ask a student to find the group of objects which matches the number one on the number line and place it under the numeral 1. Repeat this procedure for groups of objects through 10.

STRATEGY 2: Prepare 55 buttons, a masking tape number line and large numeral cards, 0 through 10. Place the numeral cards face down in random order. Ask eleven students to select a numeral card, turn it over and identify it. Say, "We will play Treasure Hunt. Begin to 'hunt' for the same number of objects as the number shown on your card. Place the objects on your card and match the card and objects with the number on the number line. Place your card and objects under the number."

P.O. 0.01.16.01

NAME: _____ CLASS: _____

Cut out the boxes with the numer
Paste them on the number line in correct counting order.



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485

P.O. 0.10.16.02

NAME: _____ CLASS: _____

Fill in the missing numerals as you count forward from 0 through 10.

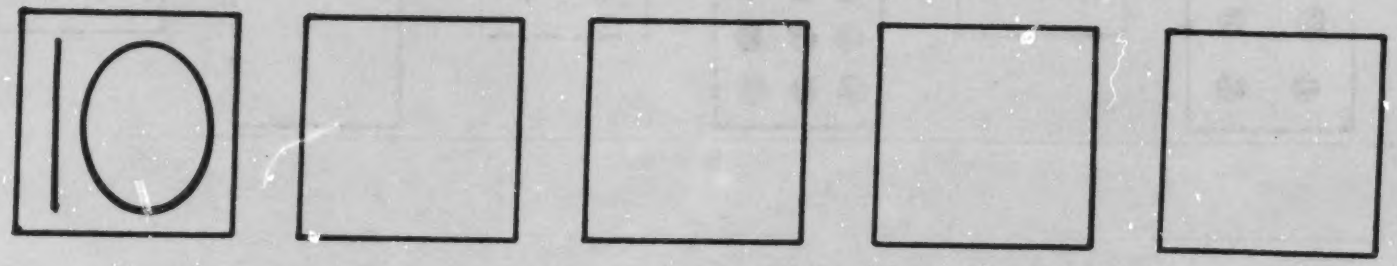
0					

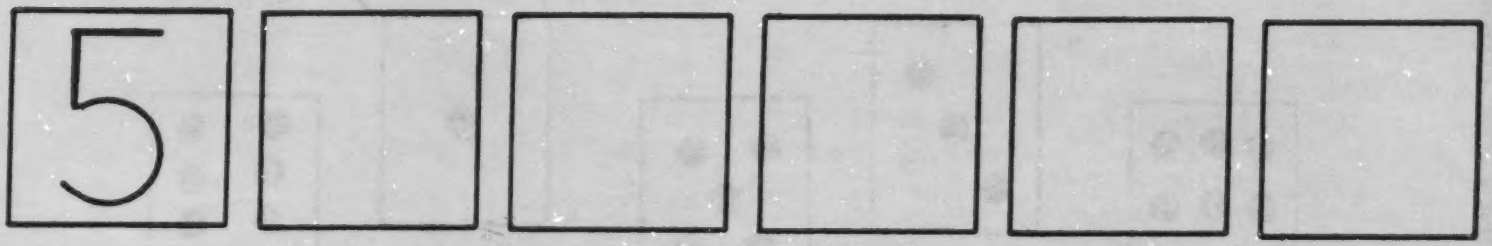
6					

P.O. 0.10.16.02

NAME: _____ CLASS: _____

Fill in the missing numerals as you count backward from 10 through 0.





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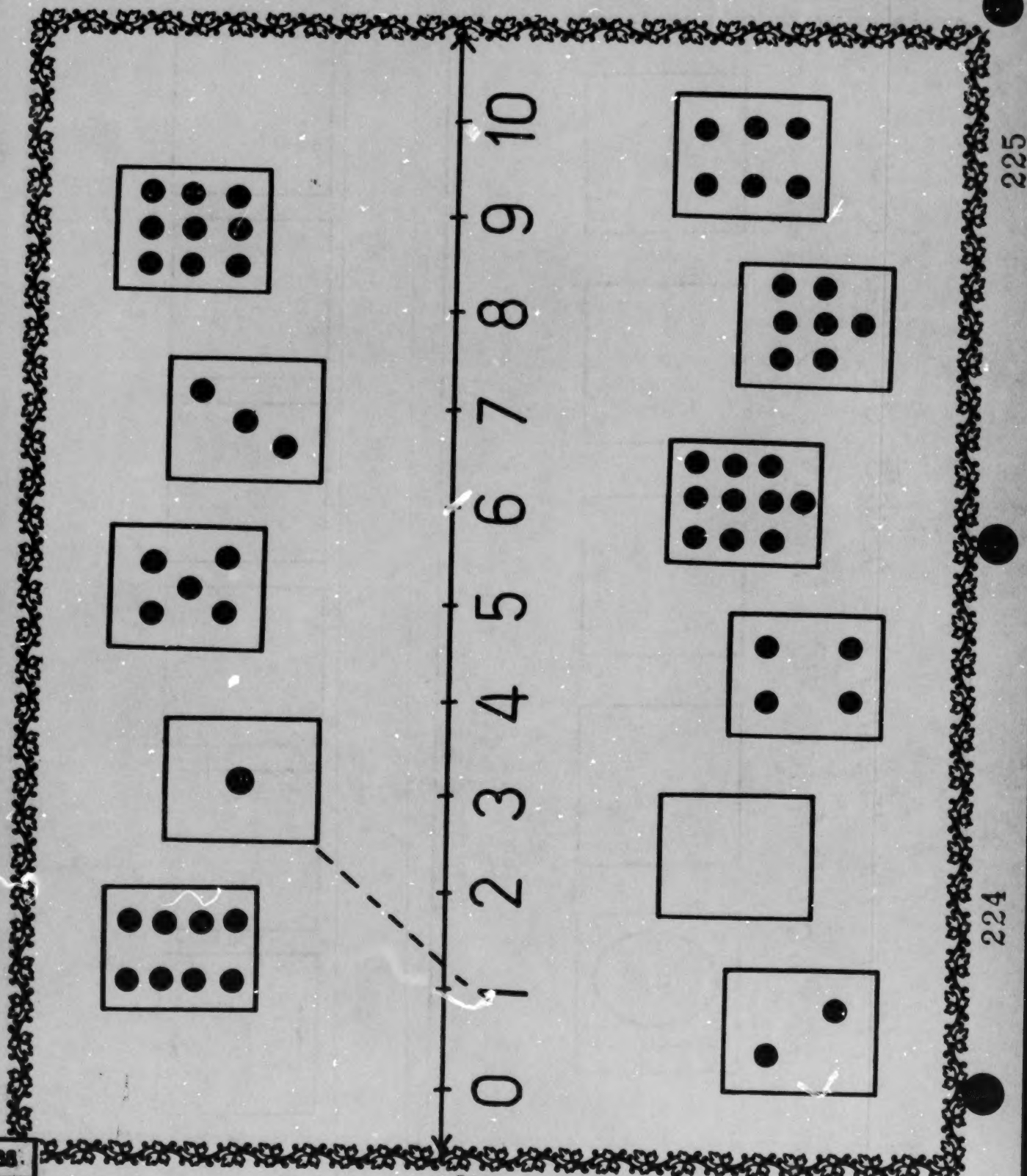
P.O. 0.01.16.03

NAME: _____ CLASS: _____

Draw lines to match the dot cards with the numerals on the number line.



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0.01.17 ORDINAL NUMBERS FIRST THROUGH TENTH

(1-2 lessons)

PERFORMANCE OBJECTIVES

The student will be able to...

0.01.17.01 match the ordinal numbers first through tenth to the cardinal numbers one through ten;
e.g.,

first second third fourth
Start here: (1)1st (2)2nd (3)3rd (4)4th

fifth sixth seventh eighth ninth tenth
(5)5th (6)6th (7)7th (8)8th (9)9th (10)10th

0.01.17.02 recite the ordinal names first through tenth.
e.g.,

first, second, third, fourth,
fifth, sixth, seventh, eighth,
ninth, tenth

0.01.17

VOCABULARY

TERMS	TERMS
first	eighth
second	ninth
third	tenth
fourth	last
fifth	in front of
sixth	behind
seventh	between

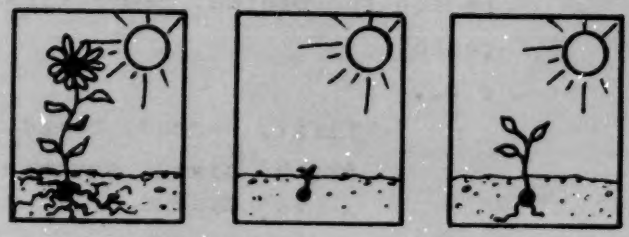
GETTING STARTED

Ask five students to stand at the front of the classroom. Ask one student to pretend to sell tickets to the movies. Ask the other students to line up facing the ticket seller. Say, "I am going to give you some clues. Try to tell us if that student is first, second, third or fourth on line. Provide clues for the students.
e.g.,

> I am thinking about a girl with a red blouse. She is standing behind Julio. Is she first, second, third or fourth?

Repeat this procedure.

Prepare and display several series of out-of-sequence pictures that tell stories. Say, "These pictures are mixed up. If they are placed in correct order they will tell a story." Ask the students to arrange the pictures in sequence and retell the story.
e.g.,



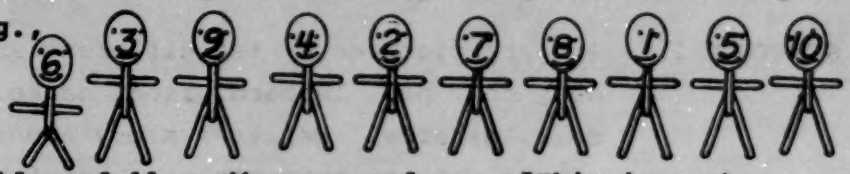
0.01.17

0.01.17.01 **match the ordinal numbers first through tenth to the cardinal numbers one through ten**

STRATEGY 1: Prepare ten cards, numbered 1 through 10. Place string through the cards so that the students can wear them. Ask ten students to form a line facing the window. Say to the first student, "You are first on line. Find the numeral card which you think tells us you are first and put it on." Repeat this procedure through the tenth student.

STRATEGY 2: Prepare numbered stick figures from one through ten, using construction paper and ice cream sticks. Arrange the figures randomly along the chalk ledge.

e.g.,



Hold up doll number one and say, "This is number one. Let's make it the first stick figure." Place it to the far left of the other dolls. Say, "Who can find figure number two? It will be the second figure." Ask a student to place it after the first figure. Say, "Which is the third figure? (number three) Where does it belong?" (Next to or after the second figure.) Continue this procedure through the tenth figure. Through your questions, make certain the students are verbalizing the ordinal and cardinal numbers and to describing where the figures are being placed.

0.01.17.02 **recite the ordinal names (first through tenth)**

STRATEGY 1: Prepare a set of ten toy trains and small pictures of objects that could be shipped by train.

Display a train and say, "The first car is called the locomotive. The last car is called the

STRATEGY 1: cont'd

caboose. Who can put his/her hand on the first car? ...the last car? This train carries things that factory workers in New York City make. These things need to be shipped to far away places. Pretend that this train must carry clothes, shoes, toys, books, pencils, chairs, tables and bikes to people who live far away. A separate car is needed to carry each of these things. Let's find the picture of the toys and paste it on the second car." Repeat this procedure for each of the cars until the caboose is identified as the tenth car.

Point to each car as students recite all the ordinal names through tenth.

STRATEGY 2: Prepare pictures of ten different animals, e.g., dog, fox, pig, leopard, lion, snake, bird, rabbit, deer, giraffe. Relate a story about ten animals in a race. Distribute the pictures to ten students. Say "Which animal was the first to finish the race?" Ask the students to stand in the order you stated in your story, e.g., rabbit, fox... Ask the students to create and dramatize original ordinal stories.

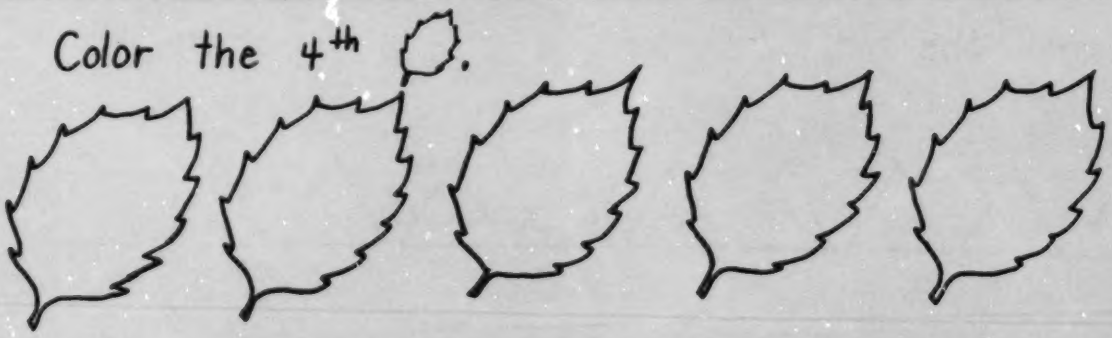
P.O. 0.01.17.01

NAME: _____ CLASS: _____

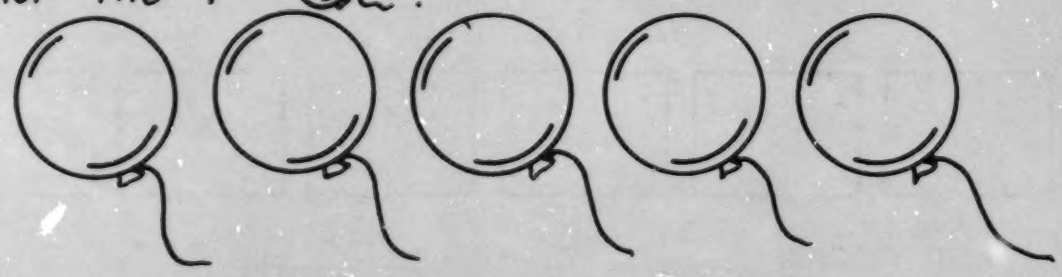
Color the 5th .

Color the 2nd .

Color the 4th .



Color the 1st .



P.O. 0.01.17.01

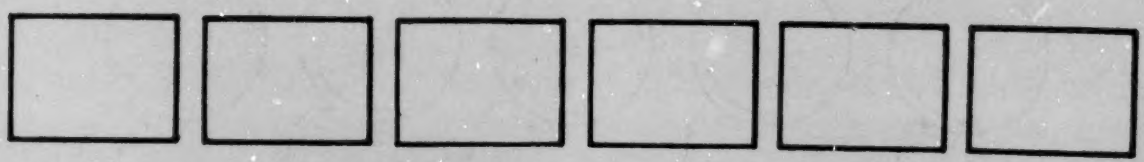
NAME: _____ CLASS: _____

Color the 7th □.

Color the 10th ○.

Color the 8th △.

Color the 6th ▭.



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0.01.18 NUMERALS ELEVEN (11) THROUGH FIFTEEN (15)

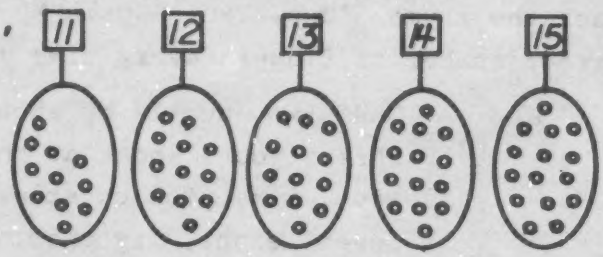
(4-5 lessons)

PERFORMANCE OBJECTIVES

The student will be able to...

0.01.18.01 associate the numerals 11 through 15 with a group (set, lot, bunch, heap, pile) having eleven through fifteen objects;

e.g.,



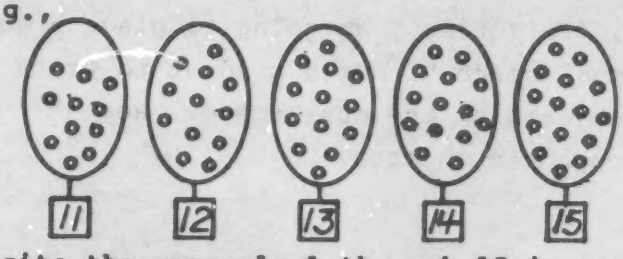
0.01.18.02 recognize and identify the symbols 11 through 15 as numerals for the numbers eleven through fifteen;

e.g.,

11, 12, 13, 14, 15

0.01.18.03 identify the elements in a given group;

e.g.,



0.01.18.04 recite the numerals 1 through 15 in correct counting order.

e.g.,

1, 2, 3, ... 15

0.01.18

VOCABULARY

TERMS	SYMBOLS
eleven	11
twelve	12
thirteen	13
fourteen	14
fifteen	15
numeral	
number	
match	

GETTING STARTED

Teach the rhyme, "One, Two, Buckle My Shoe." Say, "Raise the correct number of fingers every time you hear a number."

One, two, buckle my shoe,
Three, four, knock at the door.
Five, six, pick up sticks,
Seven, eight, lay them straight,
Nine, ten, a big fat hen.

Prepare a flannel board and flannel objects. Say, "I'm going to write a numeral that is less than ten on the chalkboard." Write the numeral. Ask a student to place that number of felt objects on the flannel board. Rearrange the objects and say, "How many objects do you see now? Has the number changed?" (No) Repeat this procedure.

Say, "This time I am going to place a number of objects on the flannel board." Ask a student to write the numeral for that number of objects on the chalkboard. Repeat this procedure using zero through ten objects.

0.01.18

0.01.18.01 **associate the numerals 11 through 15 with a group (set, lot, bunch, heap, pile) having eleven through fifteen objects**

STRATEGY 1: Prepare gummed stickers and sheets of construction paper numbered eleven through fifteen. Hold up the paper with the number 11 at the top. Choose several students to paste the gummed stickers on the construction paper. Say, "This is the numeral eleven. It is one more than ten. Let's paste ten stickers on this paper. Now let's paste one more sticker on the paper. We now have eleven stickers and the numeral eleven." Repeat this procedure for 12, 13, 14 and 15. When all the papers are completed, ask the students to stand in a line in the correct counting order, saying their numbers as they hold their papers above their heads.

STRATEGY 2: Prepare twenty dot or picture cards and large cards numbered eleven through fifteen. Place the picture cards face down on each table. Arrange the students in groups of four. Say, "Choose one card from the pile. Count the pictures on your card. Who has picked a card with eleven pictures? Raise your hand and we will collect them." Ask each student to recount the pictures for you before collecting them. Display the numeral eleven. Say "This is the numeral eleven. It tells us we have eleven things." Continue this procedure until all of the cards have been collected.

0.01.18

0.01.18.02 **recognize and identify the symbols 11 through 15 as numerals for the numbers eleven through fifteen**

STRATEGY 1: Prepare pictures of clowns holding balloons. Each picture should have a different number of balloons, 11 through 15. Prepare crayons and cards with the numerals 11 through 15 and distribute to each student.

e.g.,

11	12	13	14	15

Hold up a picture. Say, "This is a picture of a clown holding balloons. Point to the numeral on your card which shows the number of balloons this clown is holding. Draw a green circle around it." Repeat this procedure by presenting pictures of clowns holding 11 through 15 balloons.

STRATEGY 2: Prepare discs and BINGO cards with numerals 11 through 15. Each card should be different.

e.g.,

11	12	13
15	11	15
15	15	14

12	13	11
11	11	14
11	15	15

12	13	13
13	11	14
13	14	14

15	14	15
14	15	11
14	15	12

Distribute a card and discs to each student. Say, "When I call out a number, find it on your card and cover it with a disc. If you have many elevens or twelves you may cover only one of them. If I call the number again, you may cover another one. The first person to cover all the numbers on his/her card is the winner and should shout, 'Bingo!'" Record the numbers you call out on a checklist.

e.g.,

11	✓✓✓
12	✓
13	✓
14	✓✓✓✓
15	✓✓

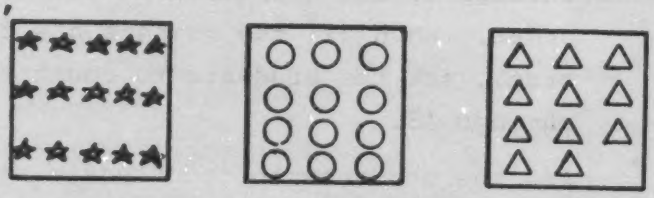
0.01.18

0.01.18.03 identify the elements in a given group

STRATEGY 1: Prepare 15 buttons, cubes or crayons and a shoebox for each group of students. Place eleven buttons or cubes in each shoe box. Say, "We have some objects in our boxes. Who would like to guess how many objects are in his/her group's box?" Accept all reasonable guesses. Say, "Let's find out how many things are in the boxes." Assist each student as he/she counts the objects. Continue this procedure using twelve through fifteen objects.

STRATEGY 2: Prepare numeral cards, 11 through 15, and picture cards, each having 11 through 15 objects with the same objects on each card.

e.g.,



Distribute numeral cards and a set of picture cards to pairs of students. Say, "Match the numeral cards with the picture cards. Place the numeral cards under the picture cards."

0.01.18

0.01.18.04 **recite the numerals 1 through 15 in correct counting order**

STRATEGY 1: Prepare 15 paper plates numbered 1 through 15. As you place the fifteen paper plates on the chalk ledge, ask the students to count from 1 through 15. Remove the paper plates, shuffle them and replace them on the chalk ledge. Say, "When we count, what number comes first?" (1) Ask a student to find the plate with the numeral 1, say the number and hold the plate up in the front of the room. Say, "What number comes next when we count?" Ask a student to find the plate with that number, say the number and stand next to the previous student. Repeat this procedure until all the numbers 1 through 15 are displayed in the correct counting order. When all the numbers are displayed in order, ask the students to count together from 1 through 15.

Ask the students to count again as each plate is replaced on the chalk ledge in correct counting order.

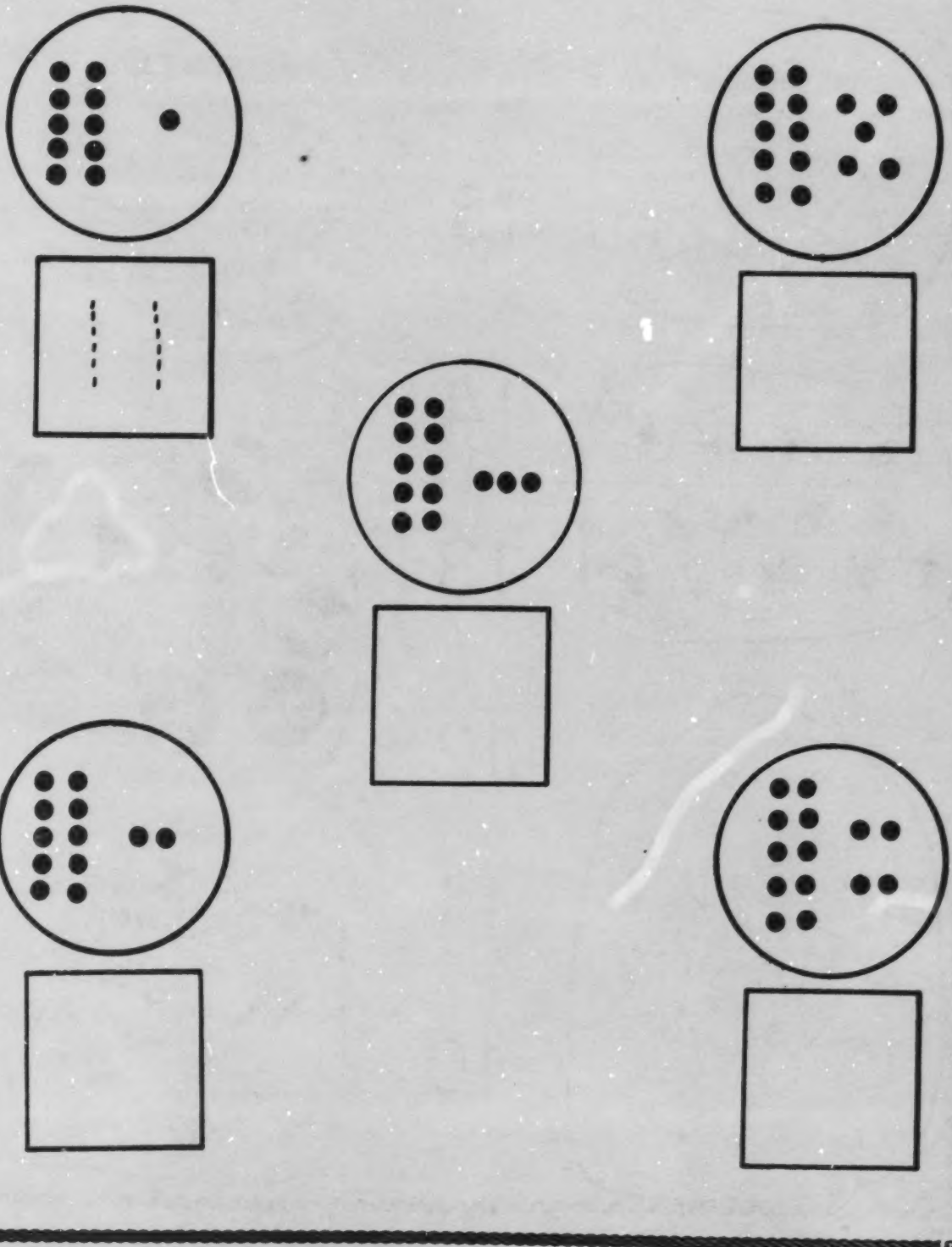
STRATEGY 2: Prepare and display cards numbered 1 through 15 in counting order. Ask the students to recite the numbers as you point to each card. Say, "Close your eyes while I remove one of the cards." Remove one of the cards from 11 through 15. Ask the students to count again, beginning with 1. Stop at the missing number. Say, "What number is missing?" Ask a student to replace the card and then ask all the students to begin to count again.

Repeat this procedure removing other number cards from 11 through 15.

P.O. 0.01.18.01

NAME: _____ CLASS: _____

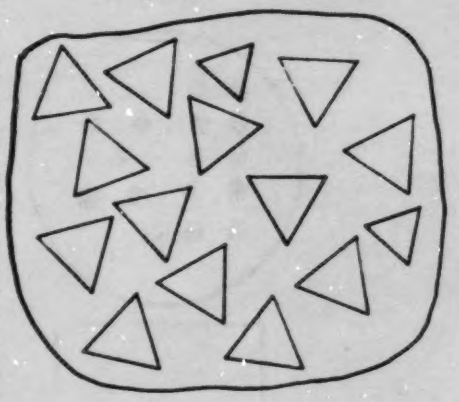
Count the beans on each plate.
Write the numeral which shows the number of beans in the box under each plate.

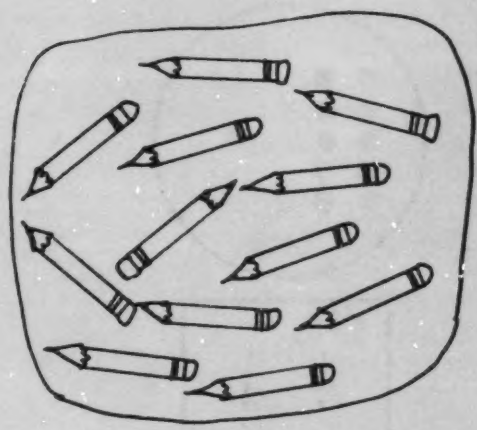


P.O. 0.01.18.01

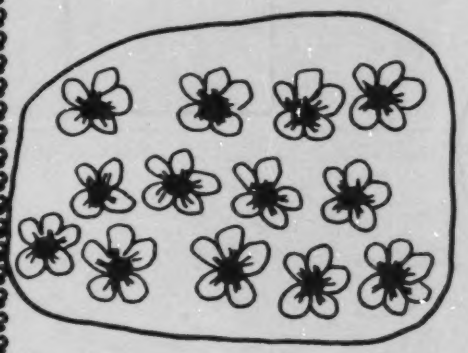
NAME: _____ CLASS: _____

Draw lines to match the numeral to the correct group.





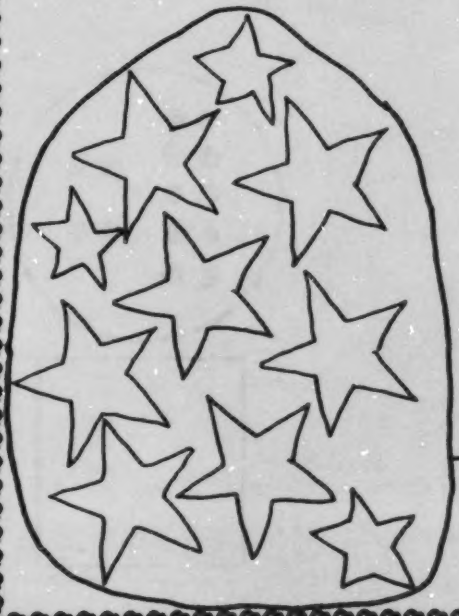
15

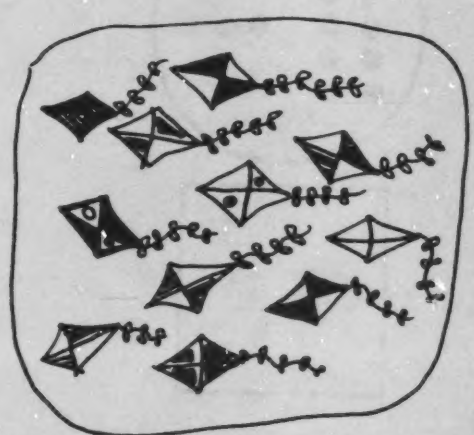


14

13

12





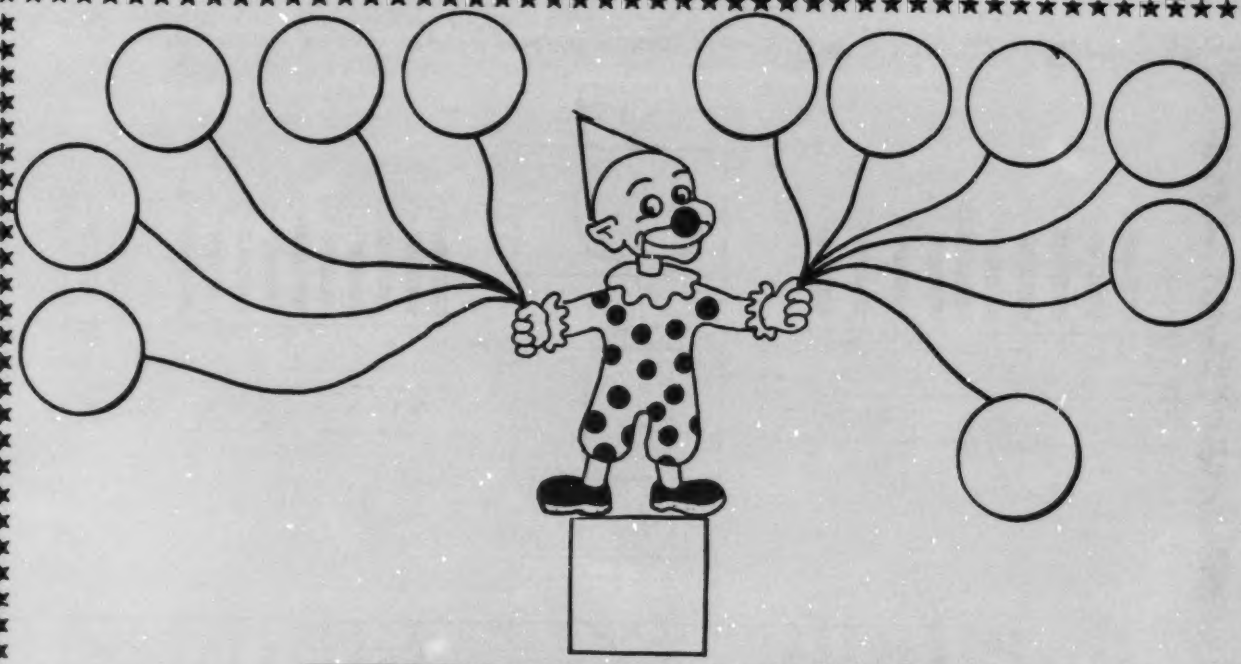
11

10

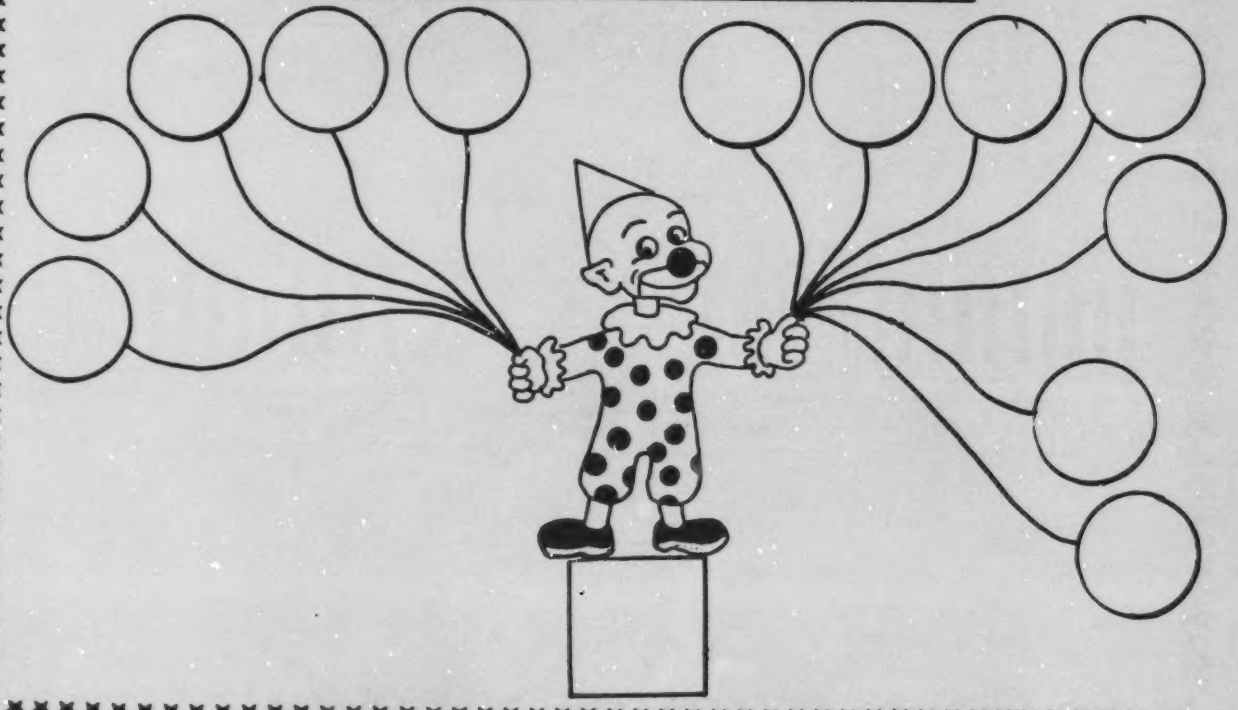
P.O. 0.01.18.02

NAME: _____ CLASS: _____

Count the balloons.
Write the numeral in the box under each clown.



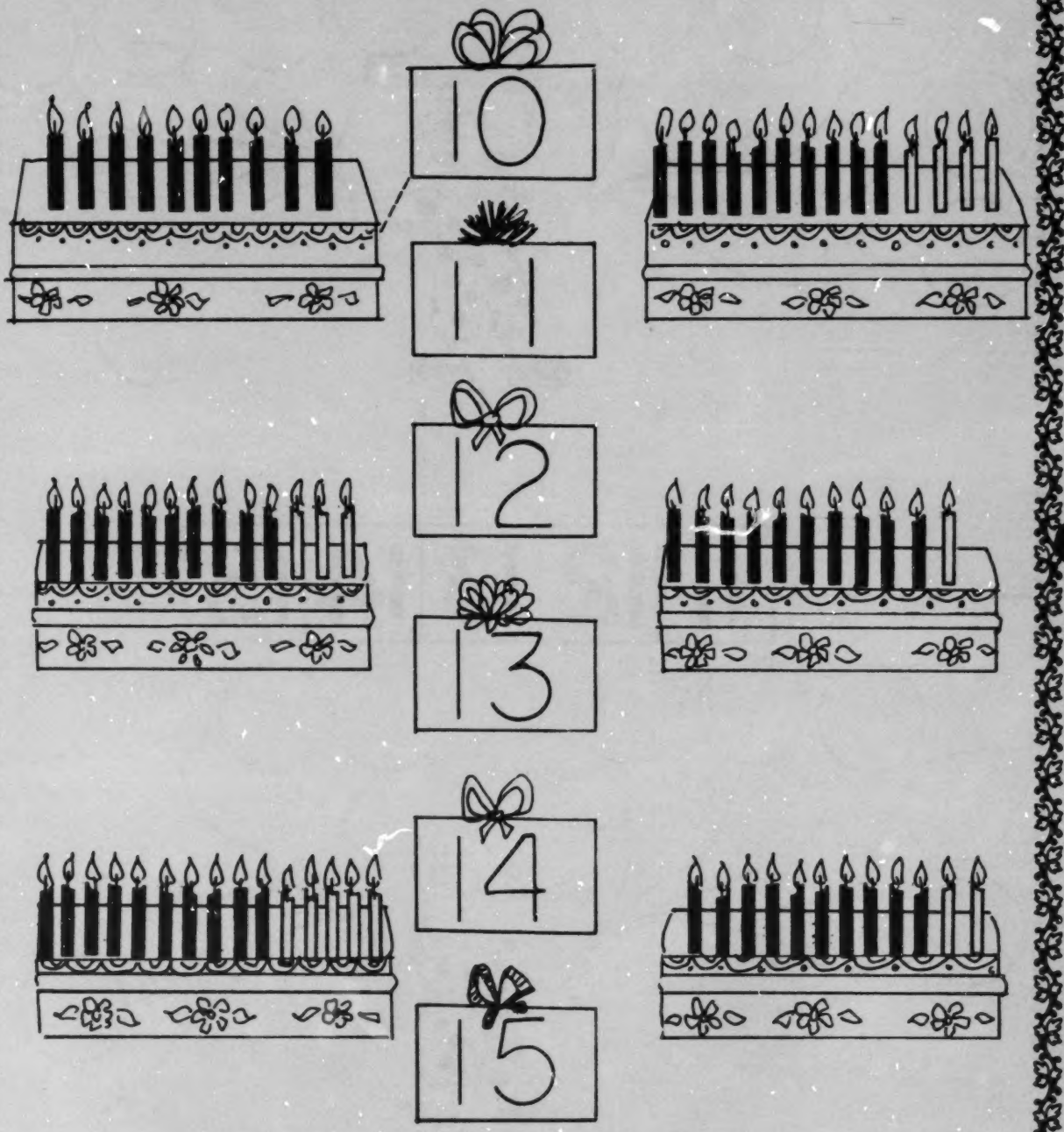
11	12	13	14	15



P.O. 0.01.18.03

NAME: _____ CLASS: _____

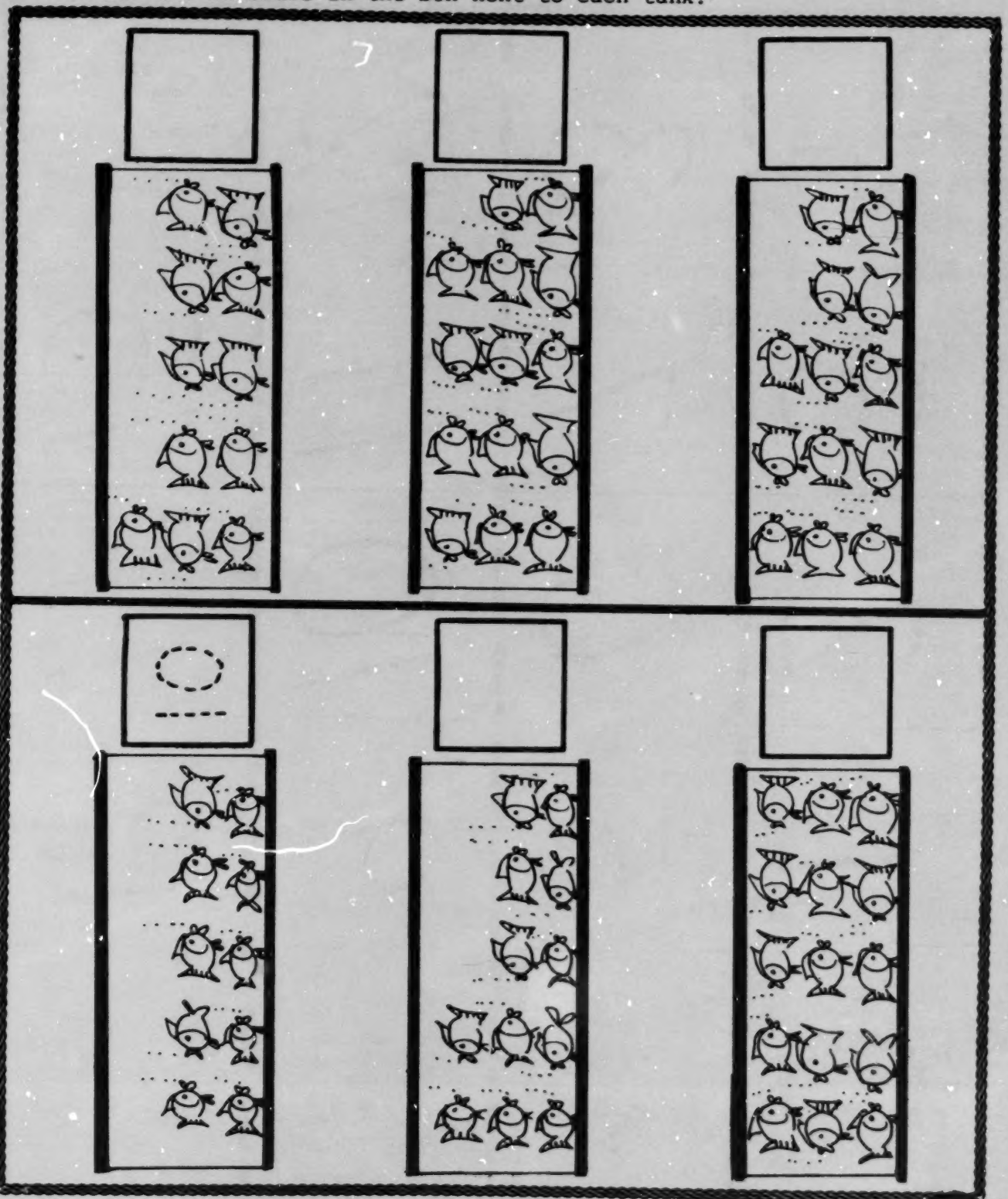
Happy Birthday!
Match the correct numeral to the candles on the cake.
Hint: 10 candles on each cake are shaded.



P.O. 0.01.18.03

NAME: _____ CLASS: _____

How many fish are in each tank?
Write the numerals in the box next to each tank.



P.O. 0.01.18.04

NAME: _____ CLASS: _____

Cut out each strip and connect them.
Cover a numeral with the hand box.
Ask your partner/neighbor, "What numeral is missing?"

0	1	2	3	4
Paste 4 on here.	5	6	7	8
Paste 8 on here.	9	10	11	12
Paste 12 on here.	13	14	15	

243

244

0.10.13 MONEY: QUARTERS THROUGH DOLLAR BILL

(3 lessons)

PERFORMANCE OBJECTIVES

The student will be able to...

0.10.13.01 recognize and name a quarter;
e.g.,

0.10.13.02 recognize and name a half dollar;
e.g.,

0.10.13.03 recognize and name a dollar bill.
e.g.,

0.10.13

VOCABULARY

TERMS

quarter
dollar
half dollar

GETTING STARTED

Prepare pennies, nickels and dimes. Play "Hide the Coin" using a penny, nickel and dime. Ask three students to hide their eyes while another student selects and hides one of these coins. The student who hides the coin should tell the searchers which coin has been hidden. The searcher who locates the coin can hide a different coin for the next round of the game.

Prepare pennies, nickels, dimes and a bag. Play, "What Coin Am I?" Ask a student to pick a coin from a bag and then return it to the bag. Ask the student to describe the coin to the class without telling its name, e.g., "I picked a brown coin with a man on one side and a building on the other side. It is smaller than a nickel. What is it?" Ask other students to guess the name of the coin.

0.10.13

0.10.13.01 **recognize and name a quarter**

STRATEGY 1: Prepare several quarters. Distribute quarters to small groups of students. Hold up a quarter and say, "This coin is called a quarter. What kind of animal do you see on the quarter? (A bird) The bird is an American eagle. What is on the other side of the coin? (a person, a man) The man is George Washington, the first president of the United States. How big is the coin? Is it bigger than a penny? ...a nickel? ...a dime? Is it as big as a paper plate? What shape is a quarter? What color is a quarter?"

STRATEGY 2: Prepare a flannel board and several felt-backed models of quarters, nickels and dimes, some showing heads, others showing tails. Place the coins on the flannel board. Ask the students to group the coins according to their attributes. Say, "Place the smallest coins on the top of the flannel board. What are these coins called? (dimes) Place the coins that have a picture of a bird in the center of the flannel board. These coins are called quarters. On the other side of the quarter there is a picture of a man. His name is George Washington. Place the coins with pictures of George Washington next to the coins with pictures birds. These are two sides of the same coin. Place the brown coins on the bottom of the flannel board. How are they different from the quarters? (smaller, brown color) What are they called?" (pennies) Remove all the coins except the quarters. Say, "Who is the man on the quarter? (George Washington) What is on the other side of a quarter? (a bird) This bird is called an eagle."

0.10.13

0.10.13.02 **recognize and name a half dollar**

STRATEGY 1: Display both sides of a flannel-backed model of a half dollar on the flannel board. Say, "This is a half dollar or fifty cents. It is silver and larger than the quarter. It has a picture of John Kennedy on one side and the great American seal on the other." Ask the students to take turns finding the half dollar on a coin chart and on the flannel board.

STRATEGY 2: Adapt Strategy 2 used in P.O. 0.10.13.01 for the half dollar.

0.10.13.03 **recognize and name a dollar bill**

STRATEGY 1: Prepare a flannel board and two models of dollar bills made from a dollar rubber stamp with felt pasted on the back of one and on the front of the other. Display the dollar bills on the flannel board and distribute several dollar bill imprints made with the dollar rubber stamp to pairs of students. Point to the picture and say, "This man is also on a quarter. Who is he? (George Washington) What do you see in each corner? (number 1) How many number ones do you see on the George Washington side of the dollar bill?" (4) Ask the students to turn the dollar over. Say, "What pictures are shown on this side of the dollar bill? (eagle, eye, pyramid) How many number ones do you see on this side?" (4)

STRATEGY 2: Prepare models of coins and dollar bills for display and enough rubber stamp models of dollar bills for the class.

Display the models of coins (both sides) and several models of dollar bills (both sides). Point to the coins and ask the students to identify them. Say, "All these coins are types of money." Point to one of the dollar bills and say, "This is money too, but it is different from the coins we have learned about. It is called a dollar bill." Ask several students to name a way in which the dollar bill is different from the coins (green, made of paper, rectangular, etc.).

Distribute the rubber stamp models of dollar bills. Ask the students to find and name the numeral that is written in each corner. Say, "The numeral one in each corner tells us that this bill is worth one dollar." Ask the students to look at the picture on the front of the bill. Say, "This is a picture of George Washington. His picture is on all one-dollar bills." Ask the students to tell what they see on the back of the dollar bill and to color their dollar bills green.

Ask several students to come to the display of coins and bills and name the coin or bill to which you are pointing.

P.O. 0.10.13.01

NAME: _____ CLASS: _____

Place an X on all the quarters.

250

P.O. 0.10.13.02

NAME: _____ CLASS: _____

Place an X on all the half dollars.

P.O. 0.10.13.03

NAME: _____ CLASS: _____

Place an X on all the quarters.
Draw a box around all the half dollars.
Color the dollars green.

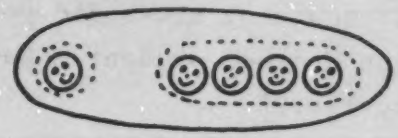
0.02.07 ADD FOUR

(3-5 lessons)

PERFORMANCE OBJECTIVES

The student will be able to...

0.02.07.01 add 4 objects to 1 through 4 objects;
e.g.,



0.02.07.02 add 4 objects to 0 objects;
e.g.,

0.02.07.03 add 4 objects to 5 and 6 objects.
e.g.,

0.02.07

VOCABULARY

TERMS	SYMBOLS
equals	=
plus	+
add	
altogether	
in all	

GETTING STARTED

Prepare a large ball. Ask the students to count as the ball is bounced. Do not exceed four bounces in all. Say, "John, bounce the ball three times. How many times did you bounce the ball?" Repeat this procedure with another student. Say, "How many times was the ball bounced altogether?"

Write the numeral zero on the chalkboard and say, "There are no students standing at the front of the room." Ask a student to come forward. Say, "How many students are standing at the front of the room now?" Write the numeral one on the chalkboard underneath the zero. Say, "At first there was no one, now there is one. How many students are standing?" Ask another student to join him/her. Say, "How many students did I just call to the front of the room? How many students are there altogether?" Continue this procedure of calling one more student until there is a total of ten.

0.02.07

0.02.07.01 **add 4 objects to 1 through 4 objects**

STRATEGY 1: Prepare and distribute number lines with small holes punched for each numeral 1 through 10 and ten paper fasteners to each student.

Say, "Place a paper fastener in hole number one. How many paper fasteners have been placed on the number line? (1) Now place a paper fastener in each of the next four holes. How many paper fasteners did we add? (4) How many paper fasteners have we placed on the line altogether?" (5) Write the number sentence 1 + 4 = 5 on the chalkboard.

Repeat this procedure for 2 + 4, 3 + 4 and 4 + 4.

STRATEGY 2: Prepare eight pint size milk containers as follows: cover each container with construction paper and label five with the number 4, one with the number 3, one with the number 2 and the last one with the number 1. Place the designated number of cubes in each container. Distribute two containers to each of four students. Each student should receive one container with 4 cubes and one other container.

Say, "Count the cubes in one of your containers. Add the cubes in your other container. How many cubes do you have in all?" As each student tells the number story, record the number sentence on the chalkboard.

Repeat this procedure by switching containers and rotating participants.

0.02.07.02 **add 4 objects to 0 objects**

STRATEGY 1: Prepare a clothesline and several clothespins hung at an appropriate height for student use. Prepare four cutouts for each of the following: jeans,

STRATEGY 1: cont'd

shirt, vest, skirt. Say, "How many pictures of jeans are on the clothesline?" (0) Ask a student to put four pictures of jeans on the clothesline. Say, "How many pictures did we add to zero? How many pictures of jeans are on the clothesline altogether?" (0 + 4 = 4)

Repeat this procedure using the other pictures.

STRATEGY 2:

Prepare two small tables and four of the same object (e.g., four books, four milk containers, etc.) Display the two small tables at the front of the room. Ask four students to bring chairs and sit around the table. Point to the table where no one is sitting and say, "How many students are sitting around this table?" (0) Point to the other table and say, "How many students are sitting around this table? (4) How many students are sitting at the tables altogether?" (4) Ask a student to tell a number story about the students at the tables. Write the number sentence on the chalkboard. (0 + 4 = 4)

Repeat this procedure, placing the four objects on one table and no objects on the other table.

0.02.07.03 add 4 objects to 5 and 6 objects

STRATEGY 1:

Prepare two aluminum cans covered with construction paper; label one 5 + 4 and the other 6 + 4. Place five popsicle sticks in the can labeled 5 + 4 and six sticks in the can labeled 6 + 4. Say, "How many sticks are in the can labeled 5 + 4?" Distribute four popsicle sticks to each student. Say, "Place four sticks in the can. How many sticks are in the can now?"

Repeat this procedure for the can labeled 6 + 4. Continue until every student has participated.

0.02.07

STRATEGY 2: Display two wire hangers. One labeled 5 + 4 and the otner labeled 6 + 4. Ask each student to clip clothespins to the hangers to show these addition facts. Each student should tell what has been done.

P.O 0.02.07.01

NAME:_____ CLASS:_____

Use the picture and word clues in each box to show the addition of four objects.

○ + ○○○○ = 5

Draw 1 ⊘ Draw 4 ⊘ How many in all?

+ =

Draw 2 Draw 4 How many in all?

+ =

Draw 3 ☺ Draw 4 ☺ How many in all?

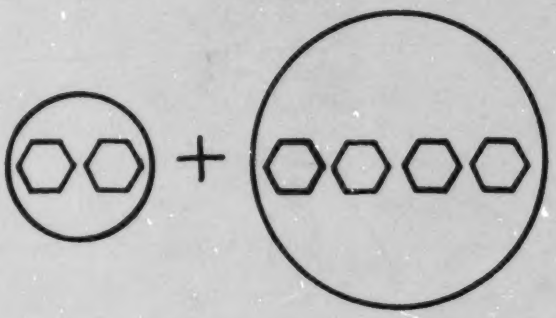
+ =

Draw 4 □ Draw 4 □ How many in all?

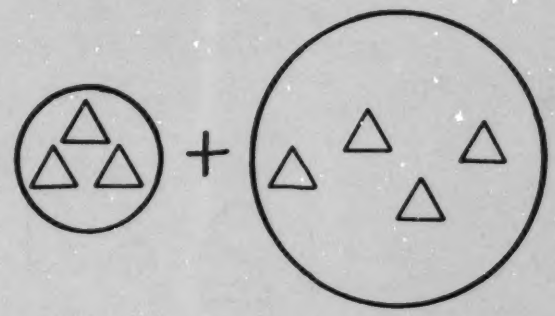
P.O. 0.02.07.01

NAME: _____ CLASS: _____

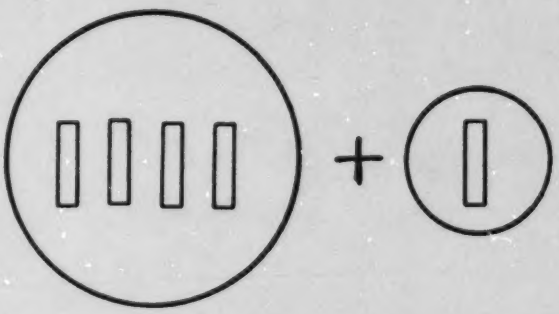
How many in all?
Circle the correct number.



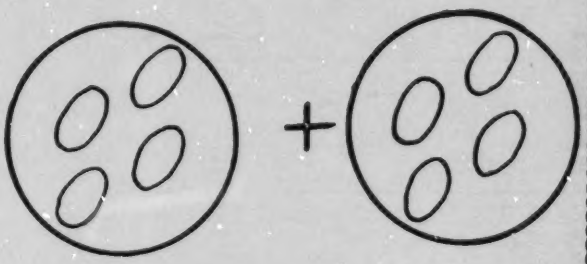
4 5 6



5 6 7



3 4 5

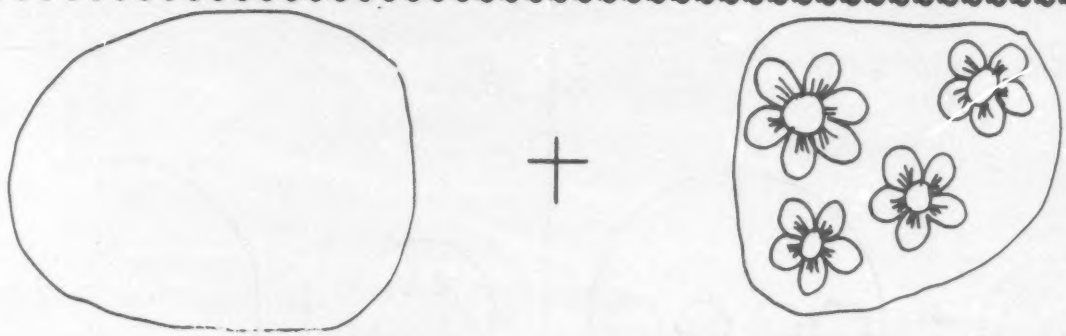


6 7 8

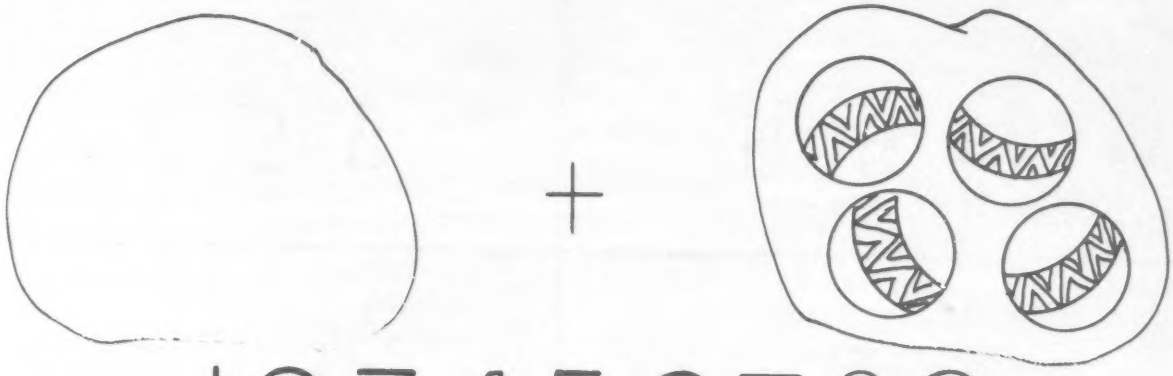
P.O. 0.02.07.02

NAME: _____ CLASS: _____

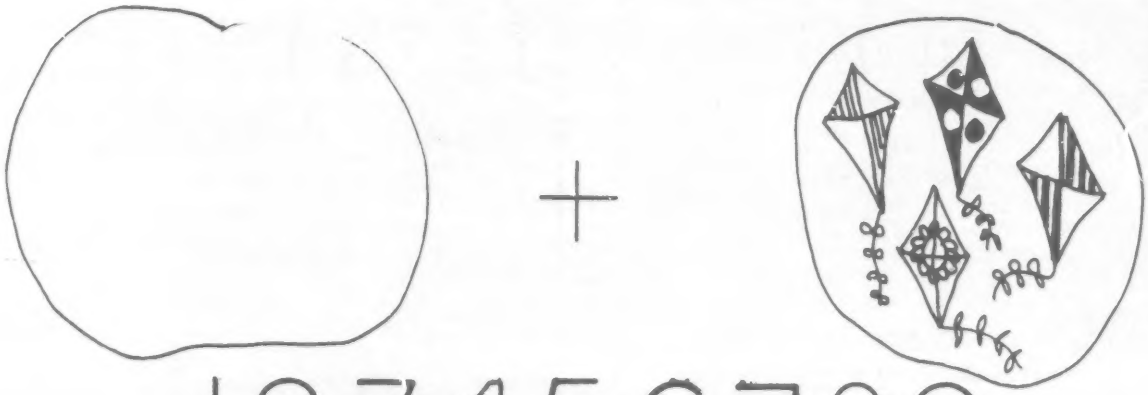
How many in all?
Circle the correct number.



1 2 3 4 5 6 7 8 9



1 2 3 4 5 6 7 8 9



1 2 3 4 5 6 7 8 9

502

P.O. 0.02.07.03

NAME: _____ CLASS: _____

Add the groups of animals.
Circle the correct number.

503

- 54d -

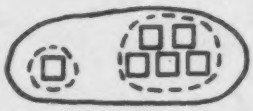
0.02.08 ADD FIVE THROUGH NINE

(6 lessons)

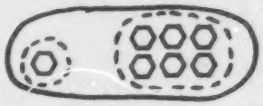
PERFORMANCE OBJECTIVES

The student will be able to...

0.02.08.01 add 5 objects to 1 through 5 objects;
e.g.,



0.02.08.02 add 6 objects to 1 through 4 objects;
e.g.,

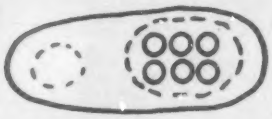


0.02.08.03 add 7 objects to 1 through 3 objects;
e.g.,

0.02.08.04 add 8 objects to 1 through 2 objects;
e.g.,

0.02.08.05 add 9 objects to 1 object;
e.g.,

0.02.08.06 add 5 through 9 objects to 0 objects.
e.g.,



0.02.08

VOCABULARY

TERMS

numerals
addition
total

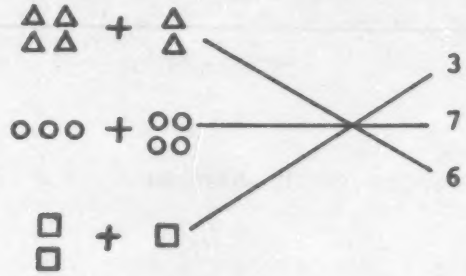
GETTING STARTED

Ask four students to stand in front of the room. Say, "Put your head down and close your eyes. If I tap your shoulder, tip-toe to the four students and stand next to them." Tap 2 students on the shoulder. Say, "Heads up. How many students were standing before you put your heads down? How many students were added? How many students are standing now?"

Continue this game adding zero through four students to make combinations through ten.

Draw groups of objects on one side of the chalkboard representing the number facts 4 + 2, 3 + 4, 2 + 1 and the corresponding numerals on the other side. Ask students to draw a line to connect each group to the corresponding numeral.

e.g.,

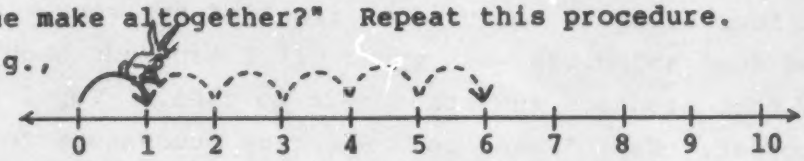


0.02.08

0.02.08.01 add 5 objects to 1 through 5 objects

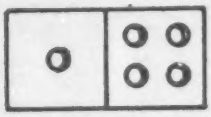
STRATEGY 1: Prepare and distribute to each student, a 10 inch number line, numbered 0 through 10 and a small paper rabbit. Say, "Hopper, the rabbit, loves to hop. Start Hopper at zero and have her hop onto number one. How many hops did she take? Hopper wants to take five more hops. Where does she land? How many hops did she make altogether?" Repeat this procedure.

e.g.,



STRATEGY 2: Prepare ten discs, five red and five blue. Punch holes in cards to represent various addition combinations.

e.g.,



Distribute the material. Ask the students to find the card with six holes. Say, "Cover one hole with a blue disc. How many blue discs do you see? Cover the rest of the holes with red discs. How many red discs did you use? How many discs are on the card altogether?" (1 + 4 = 5) Repeat this procedure until all cards have been used.

0.02.08.02 add 6 objects to 1 through 4 objects

STRATEGY 1: Prepare a floor number line. Ask a student to stand on zero and hop to number 1. Say, "Hop six more times while we count each hop. Where did we land? Who can tell us a number sentence to describe what was done?" (1 + 6 = 7) Repeat this procedure.

STRATEGY 2: While counting aloud, clap once, and then clap six times rapidly. Say, "How many times did we clap? Who can give us a number sentence to describe what you heard?" (1 + 6 = 7) Repeat this procedure.

0.02.08

0.02.08.03 add 7 objects to 1 through 3 objects

STRATEGY 1: Prepare and distribute ten popsicle sticks to each student. Demonstrate while saying, "Let's move one stick to the center of our table. Count seven sticks and place the seven sticks near the other stick. How many sticks did we just add? How many sticks in all? What is the number sentence for what we just did?" Repeat this procedure.

STRATEGY 2: Adapt strategy 1 of P.O. 0.02.08.02.

0.02.08.04 add 8 objects to 1 through 2 objects

STRATEGY 1: Prepare and distribute two green beads, eight red beads and string to each student. Demonstrate and say, "String one green bead. How many beads did you string? Count the red beads and string them. How many red beads did you string? How many beads in all? What number sentence tells what we have just done?" (1 + 8 = 9) Repeat procedure for 2 + 8 = 10.

STRATEGY 2: Prepare and distribute 2 red discs, 8 blue discs and egg cartons with ten sections to each group of students. Say, "Place one red disc in an egg carton section. How many red discs did you use? Count eight blue discs and place each blue disc in its own section. How many blue discs did you add? How many discs did you use in all? What number sentence tells what you have just done?" (1 + 8 = 9) Repeat this procedure for 2 + 8 = 10.

0.02.08.05 add 9 objects to 1 object

STRATEGY 1: Prepare 10 or more blocks for each student. Place one block in the center of the table. Say, "How

STRATEGY 1: cont'd

many blocks are there?" Place nine more blocks a short distance away. Ask the pupils to count as each block is placed. Count the total number of blocks placed. Say, "What number sentence tells what we have just done?" Ask students to show the number sentence, 9 + 1 = 10, by demonstrating with the blocks.

STRATEGY 2: Prepare for each student, crayons, gummed circles and a piece of construction paper folded in half with 9 + 1 = ☐ written at the top.

e.g., 9 + 1 = ☐☐

Ask students to paste a group of nine circles on the left side of the paper. Demonstrate. Ask the students to paste one circle on the other side of the paper. Say, "What number sentence can we write to describe these groups?" (9 + 1 = 10) Ask the students to complete the number sentence at the top of the paper.

0.02.08.06 **add 5 through 9 objects to 0 objects**

STRATEGY 1: Prepare a "post office", 5 letter carriers' hats and 35 envelopes, each with an address and a stamp. Set up the play post office with one student acting as postmaster and the others as letter carriers. Say, "How many letters does each letter carrier have now?" (Zero) Instruct the postmaster to distribute five through nine letters to each postal worker. Ask each postal worker to tell a number sentence that shows what happened. (0 + 9 = 9, 0 + 5 = 5)

STRATEGY 2: Adapt Strategy 1 used in P.O. 0.02.08.01.

P.O. 0.02.08.01

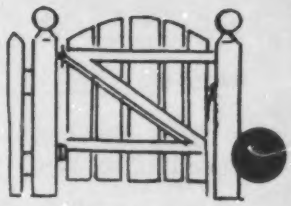
NAME: _____ CLASS: _____

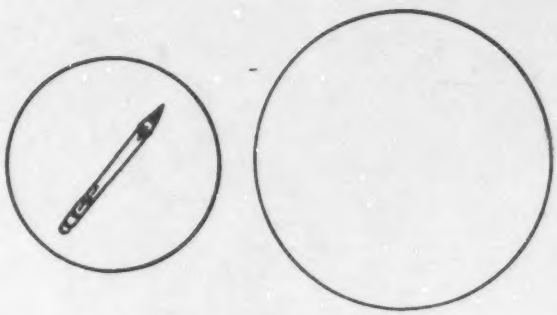
five balloons to each group by drawing them in each student's other hand.
te the number of balloons you now have in the box under each student.

P.O. 0.02.08.02

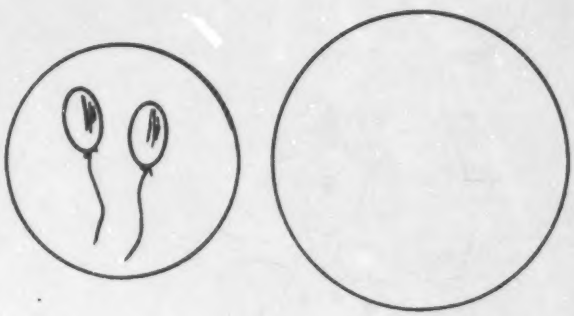
NAME: _____ CLASS: _____

Draw six objects to complete each number sentence.

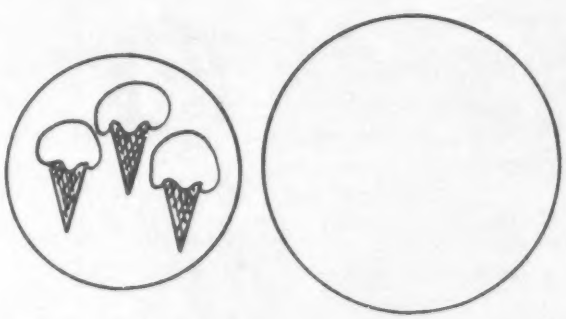




1 + 6 = 7



2 + 6 = 8



3 + 6 = 9

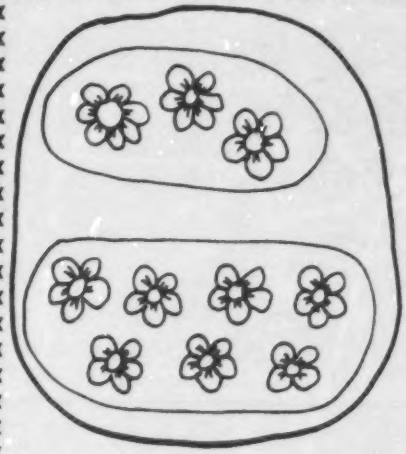
4 + 6 = 10

510

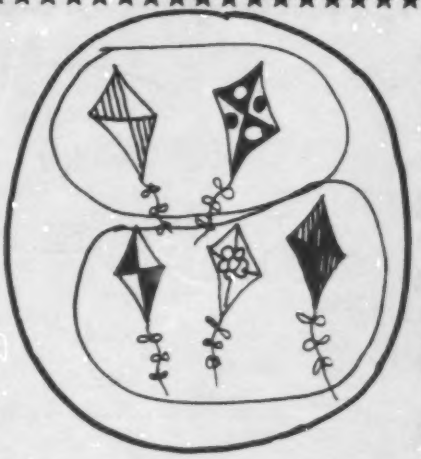
P.O. 0.02.08.03

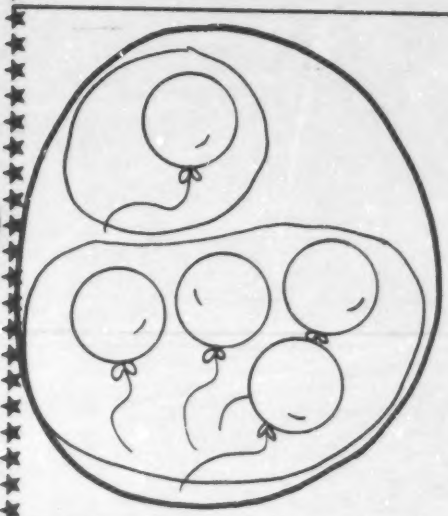
NAME: _____ CLASS: _____

Draw a line to match the pictures to the correct number sentences.

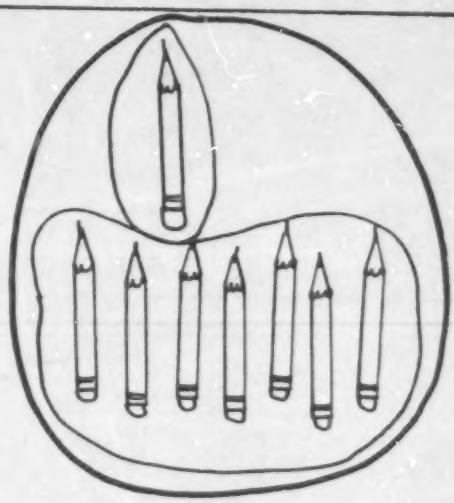


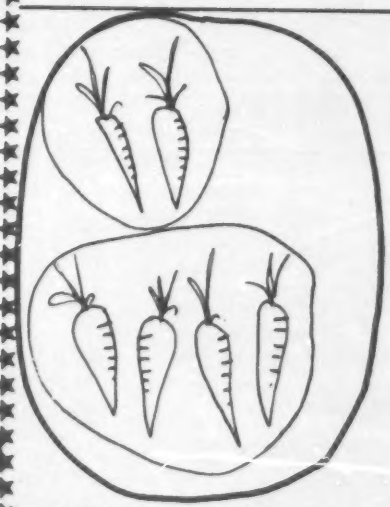
3 + 7 = 10



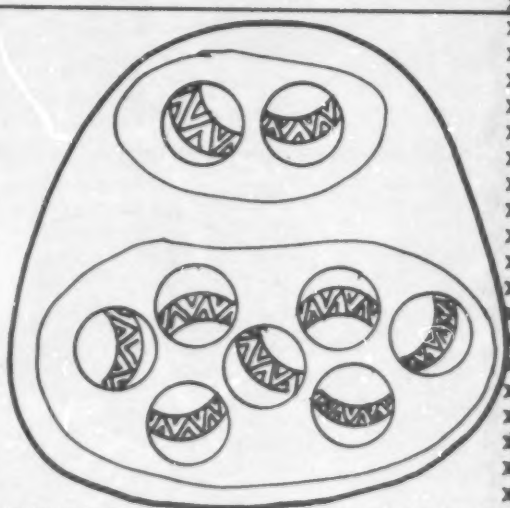


1 + 7 = 8





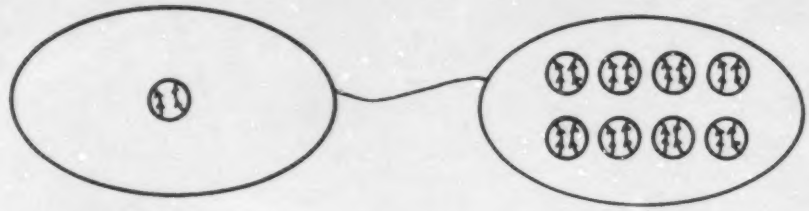
2 + 7 = 9



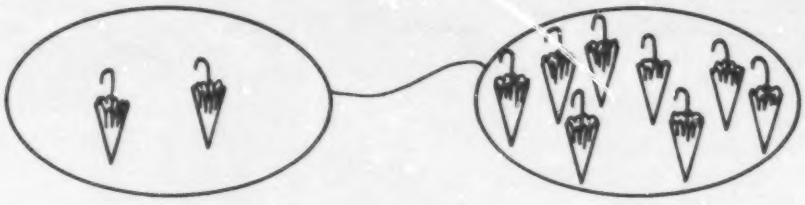
P.O. 0.02.08.04

NAME: _____ CLASS: _____

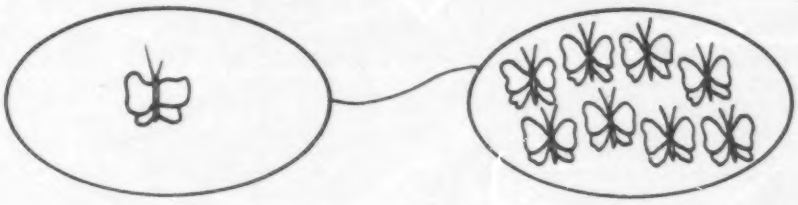
Circle the number that tells how many in all.



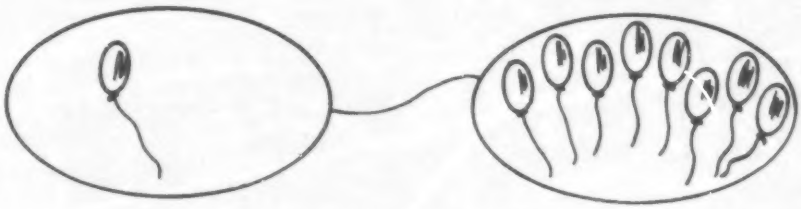
6 7 8 9 10



6 7 8 9 10



6 7 8 9 10



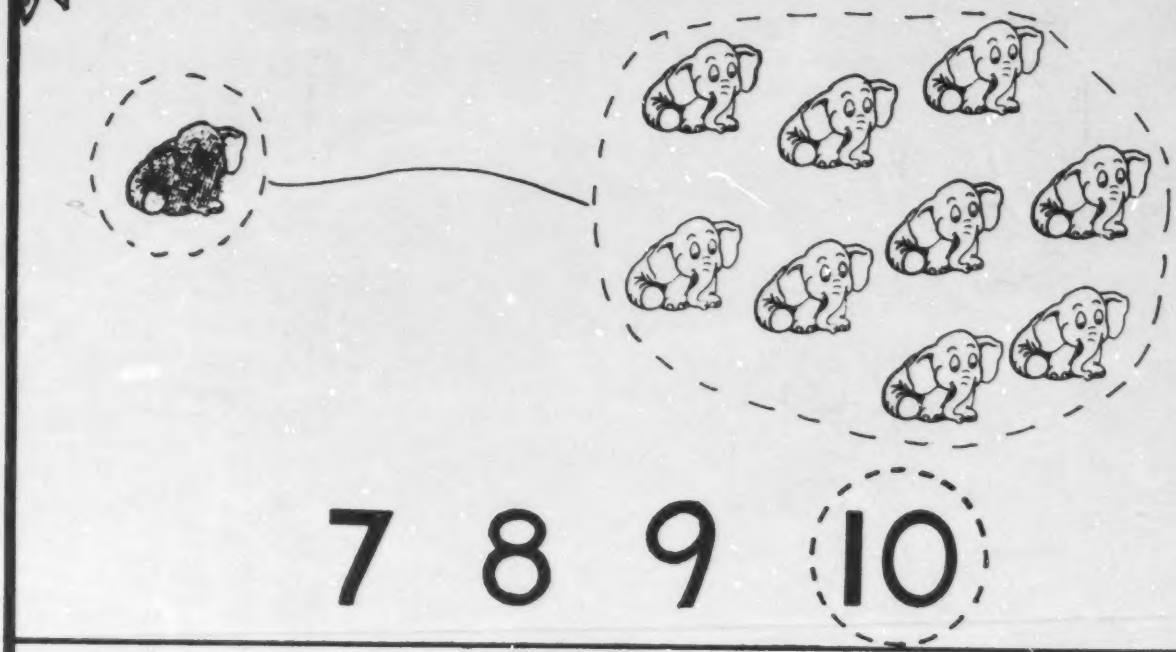
6 7 8 9 10

512

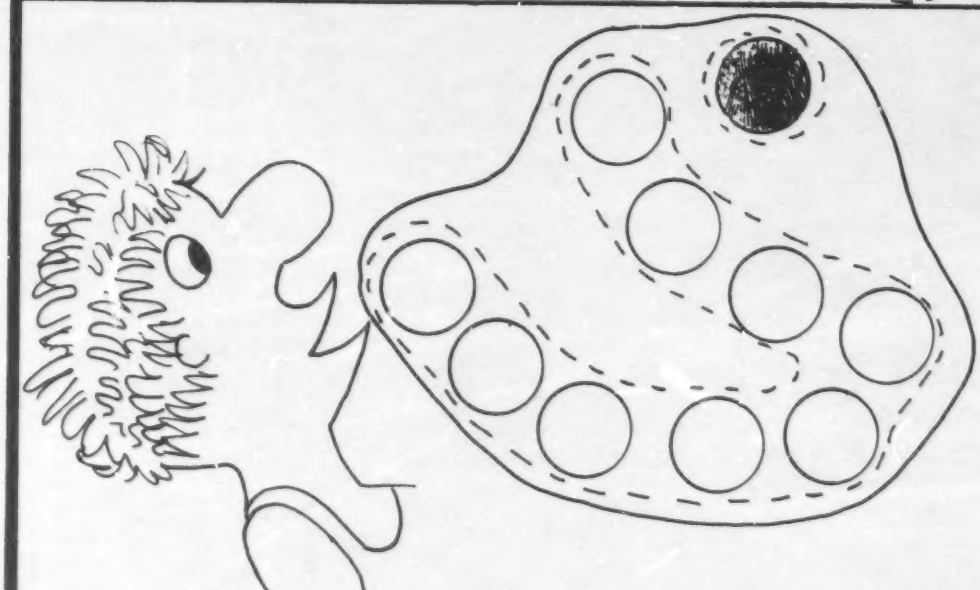
P.O. 0.02.08.05

NAME: _____ CLASS: _____

Circle the number that shows how many in all.



7 8 9 10

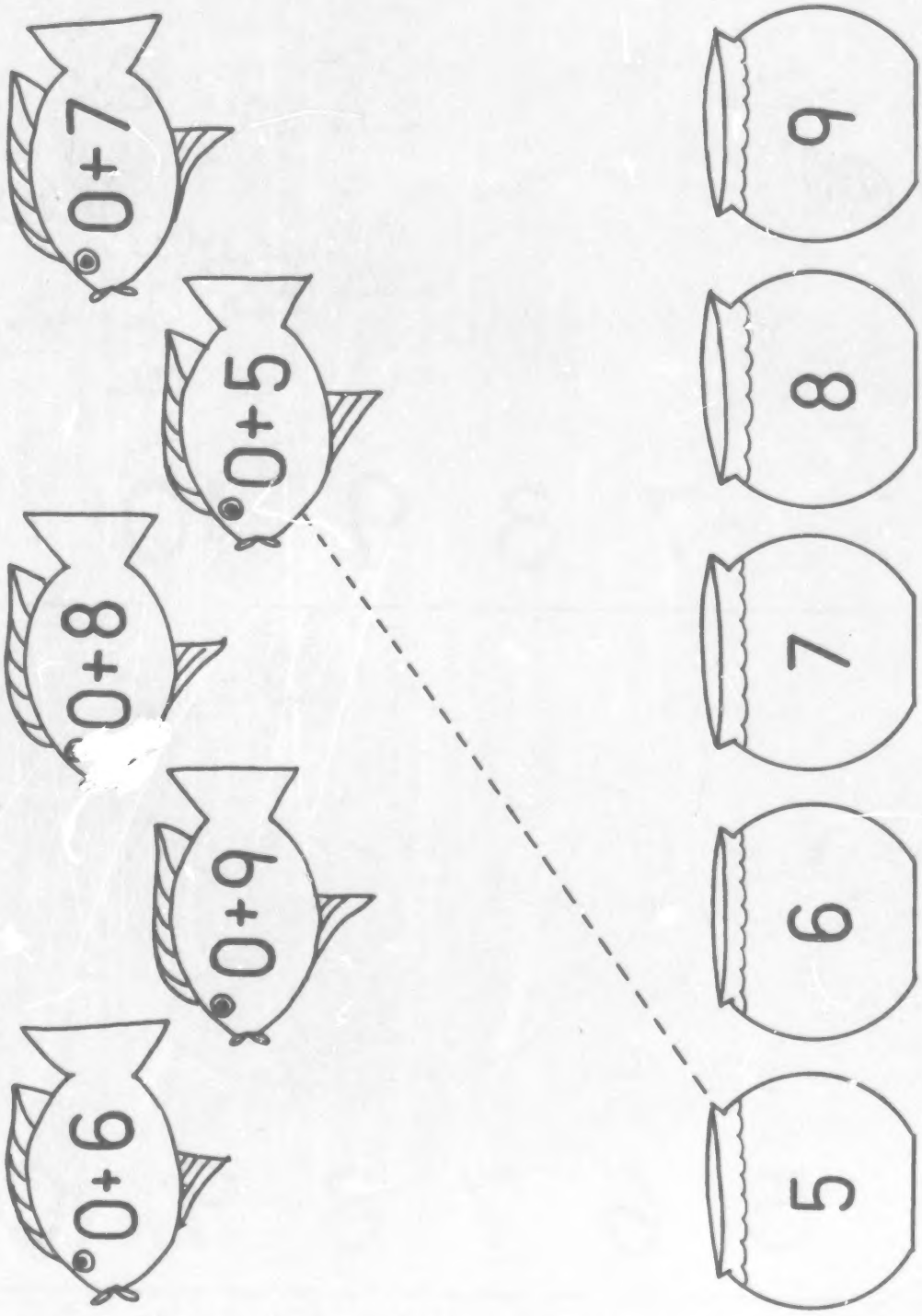


5 6 7 8 9 10

P.O. 0.02.08.06

NAME: _____ CLASS: _____

Draw a line from the fish to the bowl where it belongs.



274

273